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HOW IDA CAN ENHANCE CASH MANAGEMENT

Robert Andrew Ferguson

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## Monterey, California



# THESIS

HOW IDA CAN ENHANCE CASH MANAGEMENT

by

Robert Andrew Ferguson, Jr.

March 1980

Thesis Advisor:

E. A. Fincke

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How IDA Can Enhance Cash Management

by

Robert Andrew Ferguson, Jr.  
Lieutenant Commander, United States Navy  
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Submitted in partial fulfillment of the  
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL  
March 1980



## ABSTRACT

The Integrated Disbursing and Accounting System (IDA) is a program to modernize the Navy's financial control system through the use of computer technology and a centralized data base. During the Navy's final design stage, the Treasury Department published guidelines to enable all agencies to achieve sound cash management throughout the federal sector. This study presents an analysis of the current method of processing commercial billing invoices, identifying the problems which prevent the system from complying with the Treasury's guidelines. Various alternatives are discussed to determine how to best meet the needs of the Navy and to comply with these guidelines. Based on the author's analysis, payment certification should be performed by the Funds Administering Activity (FAA) to optimize the computer technology and fully realize the benefits of cash management. The study concludes with a discussion of the decision made by the Navy.



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## I. INTRODUCTION

### A. BACKGROUND

In 1972, after audits by the General Accounting Office (GAO) revealed major discrepancies in the financial information available to management, the Secretary of the Navy established a policy for the development of financial management systems. The Financial Management Improvement Program (FMIP) was designed to provide effective coordination in the development and implementation of integrated financial management systems while ensuring complete and accurate data at each level of management, and to ensure that suitable accounting integration is maintained with the Department of the Treasury. [15:2]

One problem that faced the Navy was the timeliness and accuracy of the financial reports available to management. It was estimated that 30 to 45 days were required to provide end-of-the-month reports to top level management and these reports contained approximately two billion dollars of disbursements that were not recorded as expenditures in the accounting records. [4:ii] The payment for goods and services was accomplished through the disbursing function which was separate from the accounting function responsible for the maintenance of the official accounting records. Both the payment and the recording of the transaction required hard copy documentation which was normally transmitted through the postal system. Delays due to the preparation and transmission





of documents from disbursing to the accounting function were regarded as the primary cause for undistributed disbursements.<sup>1</sup>

As one project of the FMIP, the Integrated Disbursing and Accounting System (IDA) was designed to improve the timeliness and accuracy of financial reports by integrating the functions of accounting and disbursing. In addition, the system would make use of improved computer technology, automated data processing and advanced telecommunication techniques. The integration of the two functions would all but eliminate the undistributed disbursements and the automation and elimination of delays associated with the postal system would greatly improve the processing capability of the system.

An additional advantage of IDA was recognized when the Treasury Department published a new chapter to the Treasury Fiscal Requirement Manual entitled "Cash Management." The manual prescribes the procedures to be observed by federal agencies to ensure effective management of the government's cash. Cash management is defined as the recognition of the time value of money. In establishing a sound cash management program, three components of the program must be considered: acceleration of cash inflow; reduction of idle cash balances, and the deceleration of cash disbursements. [16:42] Since IDA was designed to improve the disbursing process, the system

---

<sup>1</sup>Undistributed disbursements represent the difference between the value of disbursements made and recorded at the appropriation level and those recorded at the allotment level during the same accounting period. [4:1-9]



is directly involved in the compliance guidelines of the Treasury.

#### B. DEFINITION OF THE PROBLEM

Two major considerations in the deceleration of cash disbursements were established by the Treasury. First, agencies are to take all appropriate discounts<sup>2</sup> available, and second, delay all other payments until the final due date. Since these guidelines were published after the design and initial implementation of IDA, the extent to which the system can contribute to a sound cash management program is not known.

#### C. OBJECTIVE OF THE STUDY

This study was directed specifically at the processing and payment of commercial invoices under the IDA concept. The present system was analyzed to determine to what extent it meets the cash management guidelines. The objective of this study was to identify existing problems, discuss various alternative solutions and recommend changes that will improve the processing of commercial invoices which will support a good cash management program.

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<sup>2</sup>Appropriate discounts are those discounts in which the amount saved by taking the discount is greater than the cost of capital for that period. For instance, if goods are purchased for \$1000 on terms 1% in 10 days, net 30, the buyer has the option of paying 1% less or \$990 within 10 days or the \$1000 within 30 days. If you assume the cost of capital for the 20 days is \$5 (that equates to 9% annual interest for 20 days), the discount is appropriate since the discount of \$10 exceeds the cost of capital.



#### D. METHODOLOGY

In order to determine the existing problems and how IDA can enhance cash management in the processing of commercial transactions, a review was made of invoice processing requirements and the concept of cash management which is summarized in Chapters II and III. In order to meet the objective of the study, the following questions formed the basis for the research:

1. What is cash management and what are the current guidelines which must be followed?
2. What data is required in order to establish good cash management in the disbursement of funds?
3. What are the basic objectives of IDA and the changes required in the present system to meet those objectives?
4. Who are the key players involved in the processing and payment of commercial transactions?
5. What is the most current processing method being employed in the implementation of IDA?
6. Does this process employ all the design features of IDA? If not, why?
7. Will the final design of IDA meet all the cash management requirements? If not, what changes must be made?
8. Are there any other programs in the FMIP which should be considered in the design of a processing method to meet the objectives of IDA and cash management guidelines?





Much of the background research is based on published literature as contained in the bibliography. Personal contact and telephone interviews with representatives of various commands were also used to answer the questions. The following commands provided time and assistance in the research:

Chief of Naval Education and Training (CNET), Pensacola, FL  
Fleet Material Support Office (FMSO), Mechanicsburg, PA  
Office of the Comptroller (NAVCOMPT), Washington, DC  
Naval Accounting and Finance Center (NAFC), Washington, DC  
Naval Postgraduate School (NPS), Monterey, CA  
Naval Supply Center (NSC), San Diego, CA.

It should be noted that the perceived problems and recommended solutions contained in this study are those of the author and not the various commands.

This study only deals with the processing of commercial invoices under the IDA system. Although other processing methods are mentioned, the basis for this study is the author's observations at the most advanced prototype Financial Information Processing Center located at the Naval Supply Center, San Diego, CA. The discussion deals only with the processing of a Purchase Order as the other methods of procurement from commercial sources requiring invoices involve only minor variations to the data and procedures for Purchase Orders.

#### E. ORGANIZATION

Chapter II reviews the basic concepts of cash management and IDA. Chapter III presents the present method of processing a commercial invoice under the Phase IIB implementation of IDA. Chapter IV compares the present method to the concepts discussed in Chapter II to determine the problems and propose the





alternative solutions available. Chapter V discusses the alternative considered most appropriate based on the author's analysis. The concluding comments of the author are contained in Chapter VI.



## II. CASH MANAGEMENT POLICY AND THE IDA DESIGN

Before a discussion on how IDA can be better utilized to enhance cash management, an understanding of the concepts of cash management and IDA is required. The following sections provide the background information that will be used for the analysis.

### A. CASH MANAGEMENT

#### 1. Concept

The objective of a sound cash management program is to ensure that sufficient funds are available to meet the financial obligations of the organization at a minimum cost. Simply stated, cash management is the recognition and optimization of the time value of money. There are three basic components of a cash management program: accelerating the inflow of receipts, decelerating the outflow of payments, and minimizing the volume of cash held in non-revenue producing activities. [16:42]

#### 2. Cash Management in the Private Sector

The time value of money has been regarded as an important factor in the decision making process within the private sector. Although one may argue that the primary objective of an organization is to provide a service, it remains that the effectiveness of management is normally measured in terms of profitability. It is an important managerial decision in the determination of the amount of funds that must be maintained to conduct the routine functions of the organization.



Insufficient funds can result in an inability to pay bills or increased expense due to short term loans at higher interest rates. Excess funds should be invested to increase earnings.

[6:16]

The amount of funds required is based on an analysis of the cash flow during the period. Cash flow analysis includes the determination of when funds will be received and disbursed. The projected receipt of funds is obtained by a review of the sales forecast, policy of collection of sales receipts and projected sales of fixed assets. Cash disbursements are a function of the following goals and policies; payment of accounts due, inventory levels to be maintained, projected production for the period and capital budgeting decisions for the replacement or addition of fixed assets. In essence, cash flow analysis is affected by all aspects of the organization.

Through analysis of the funds requirements for an organization, management can realize the benefits of sound cash management practices. Reduction in the collection period of accounts receivable can provide the cash required for routine operations, reducing the need for short term loans. Investing excess capital earns interest and delaying disbursements saves interest costs, both of which increase profits. Even production can be streamlined to reduce investments in non-revenue producing excess inventories. When the time value of money becomes significant to an organization's earnings,



management adapts to optimize cash flow to maximize their success measuring criteria, profit.

### 3. Cash Management in the Federal Sector

Although the concept of cash management has been practiced in the private sector for many years, the relative importance to the federal government has only occurred in the past several years. In the Joint Financial Management Improvement Program's "Money Management Study" of January 1976, it was stated that "cash management in the federal government has not received a large degree of attention from the decision makers outside the Treasury Department." Generally, management in the federal government is evaluated on its ability to accomplish the goals of the organization, not by the efficiency with which these are completed. Only when the public eye was directed at the increasing federal budget and interest rates continued to rise was attention directed to cash management.

In November 1977, President Carter directed that a study be conducted to examine the government's cash management policies, practices and obligations. Working in conjunction with the Treasury Department, the stated purpose of the study was to "seek ways to use our cash more efficiently with a view toward reducing federal debt requirements and interest costs." [16;42]

In March 1978, as a result of the President's study, a new chapter to the Treasury Fiscal Requirements Manual entitled "Cash Management" was published. The chapter prescribes the procedures to be followed to ensure sound cash





management when establishing regulations and systems. The procedures are applicable to all government agencies whose financial transactions affect the cash amount in the Treasury.

#### 4. Cash Management in the Navy

Soon after the cash management chapter was published by the Treasury Department, the Department of Defense (DOD) initiated a joint study to evaluate the cash management programs of the military. The purpose of the study was to determine if the current regulations and practices were in compliance with the new guidelines. The Navy's performance in each of the components of cash management was as follows.

##### a. Acceleration of Cash Inflow

There were no discrepancies in the regulations concerning cash inflow but recommendations were made, and later incorporated, to improve practices which would accelerate the cash received into the Treasury's account. First, the receipts from the Naval Exchange System had required processing through the disbursing office prior to deposit into the bank. The process was changed to permit the funds to be deposited daily, directly into the bank while deposit slips, rather than cash, are processed through the disbursing office. Second, the method in which Foreign Military Sales (FMS) had been collected involved several collection points located away from Federal Reserve Banks thereby preventing the use of the funds by the Treasury for a period of time. The study proposed that collections be deposited in a centralized Federal Reserve Bank and encouraged foreign countries to use electronic funds transfer



for FMS payments. Finally, the DOD billing process was slow in the preparation and dispatch of invoices. The recommendation was made to ensure invoices are mailed within one working day of the shipment or release of goods and that a late payment charge is included in the contract. [14:36]

b. Reduction in Idle Cash Balance

The majority of the cash maintained in the Navy is by disbursing officers aboard ships. While strict regulations could be established which would reduce cash requirements, shortages on paydays could result in an adverse effect on the crew's morale. The most apparent solution is for disbursing officers to conduct a cash flow analysis similar to those performed by the managers in the private sector. [14:43]

c. Deceleration of the Outflow of Cash

The major discrepancies noted by the study concerned the regulations and practices in the disbursement of cash. The two areas of concern were the timeliness of disbursements and the processing of cash discounts.

(1) Timeliness of Disbursements. Although the figures for the Navy cannot be specifically segregated, reports indicate that 70 percent of all commercial invoices against the federal government were paid on or before the due date of the invoice. [2:10] The JFMIP report on cash management stated that a disbursing office in DOD paid 85 percent of the invoices, on the average, several days in advance of the due date. [7:14] Until the new procedures were issued, the Navy made no attempt to delay payment until the due date.



For commercial invoices without discounts, the Navy disbursing function worked on a first-in, first-out basis, paying the bills without regard to the due date. The general feeling was that normal processing would delay payment to the approximate due date of the invoice. The new Treasury Department procedures give specific guidance on the payment of invoices:

8040.20 - Timeliness of Disbursements. An agency's payment system will be designed to provide for scheduling the issuance and mailing of checks for receipt by the payees as close as administratively possible to the due date as specified in the invoice, contract, or other agreement. If no due date is specified, the due date will be considered to be on the thirtieth (30) day from receipt of the invoice and payment will be scheduled to be made on that date. If the goods or services are not received by the 15th day before the due date of an invoice, payment will be made no later than 15 days from the receipt of goods and services, but not prior to the due date. Payments will not be made on invoices prior to the receipt of the related goods and services by an agency or its duly authorized agent, except as specifically provided by contract or other agreements executed pursuant to law.

(2) Cash Discounts. The Navy has always recognized the advantage of taking discounts offered by commercial vendors. Procedures have been established to identify and process invoices with significant discounts. The level of significance was usually left to the individual finance center. The new Treasury Department procedures give more specific guidance on cash discounts:

8040.30 - Cash Discounts. Agency payment systems will incorporate procedures which will automatically take advantage of cash discounts as a matter of routine and eliminate any need for special handling. Such discounts will be taken when the discount rate is equivalent to or greater than, 1% in ten days, net 30 days. Lesser





discounts, but in no case less than 1/2% in 10 days, net 30 days or equivalent, may be taken by an agency after its determination that such discounts would be cost effective, considering its own operations. All discounted payments will be scheduled for check issuance on the last day of the discount period. However, payments will not be made to achieve discounts unless the related goods or service have been received except as specifically provided by contract or other agreements executed pursuant to law.

The determination of the minimum acceptable discount by the Treasury is discussed in Appendix A.

As one can see, the procedures for cash disbursements are explicitly stated in the Treasury Fiscal Requirements Manual. In order to comply, the Navy must design a system capable of providing the disbursing officer with the information required to determine the amount to pay and when the payment should be made. The specific variables which must be provided include: [16:45]

(a) Due date on the invoice. If advance payments are to be made, the date must be specified on the procurement document.

(b) Date of receipt and acceptance of the goods or services.

(c) Type of contract.

(d) Determination of a discount which meets the guidelines.

## B. INTEGRATED DISBURSING AND ACCOUNTING

### 1. Activities Involved with Commercial Transactions

Before the discussion of the design of IDA, a brief description of the activities involved in the processing and payment of commercial invoices is presented.





a. Funds Administering Activity (FAA)

The local activity which receives an operating budget is called the Funds Administering Activity. The FAA is assigned the responsibility for the budgeting, expenditure, accounting and reporting the use of the funds authorized in the accomplishment of its mission. Within the FAA, the funds administrator is the individual specifically responsible for budget formulation and execution.

b. Authorization Accounting Activity (AAA)

Prior to the implementation of IDA, the AAA provided the accounting services and maintained the official accounting records for the FAAs within its region.

c. Navy Regional Finance Center (NRFC)

Prior to the implementation of IDA, the NRFC was responsible for the payment of the commercial invoices of the FAAs within its region. The NRFC would interact with the AAA to ensure the official accounting records reflected the payment of an invoice.

d. Financial Information Processing Center (FIPC)

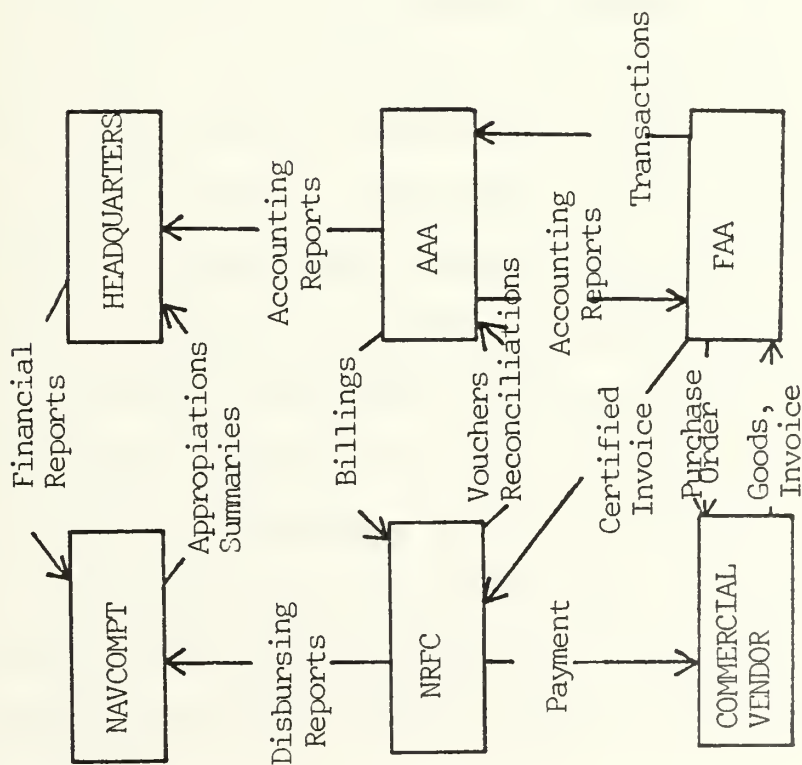
With the implementation of IDA, the FIPC provides the accounting and disbursing functions that were available through the AAA and NRFC.

2. Pre IDA Financial Information Flow

The flow of financial information prior to the implementation of IDA is depicted in Figure II-1 along with the proposed changes by the IDA design. Basically, there were two separate systems which provided financial reports; the



# PRE IDA FINANCIAL INFORMATION FLOW



Adapted from the IDA General Design Manual

# IDA FINANCIAL INFORMATION FLOW

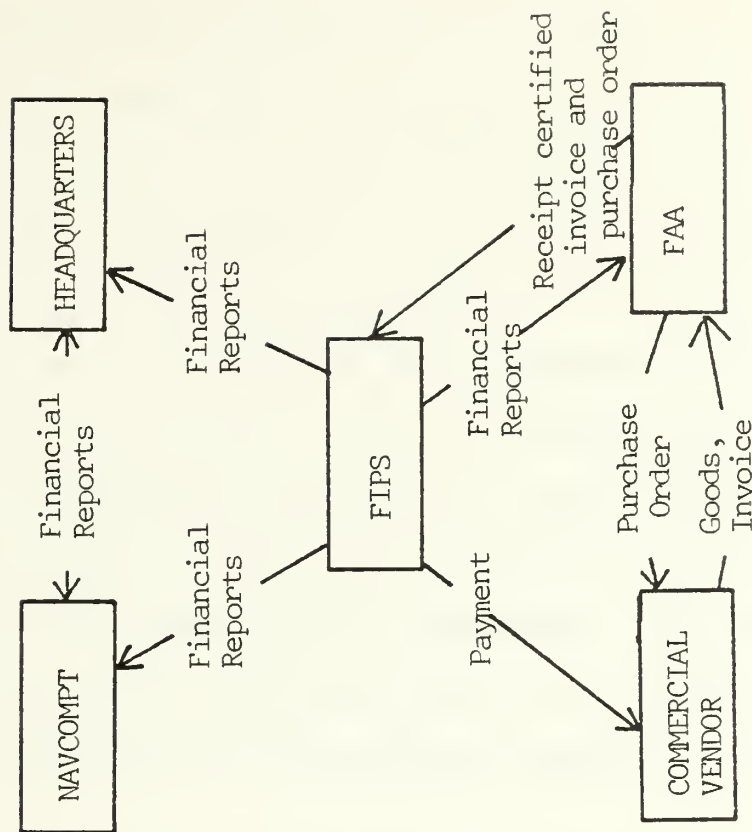


FIGURE II-1



disbursing or cash flow system and the accounting or cost system. The two systems had become separate and distinct during World War II when the need for prompt payment was essential to cash poor vendors providing war materials. The process developed in which the payment of an invoice preceded the accounting procedures for the payment. [14:16]

When a FAA purchased a good or service from a commercial source, the purchase agreement was sent to the AAA for entry as an obligation in the FAA's official accounting records. After the goods had been received, the receipt certified invoice was mailed to the NRFC for payment. Approved invoices were processed by the NRFC and payment was made to the vendor.

The accounting for the payment required time and effort by the AAA and NRFC. As obligations were established by the AAA, a record or billing was mailed to the NRFC to match the payment with the obligation. The NRFC, in turn, would sort the paid vouchers by AAAs which served the various FAAs (there were 275 AAAs as compared to 5 NRFCs) and mail the vouchers to the AAA for expenditure recording in the accounting files. The NRFC matched the invoices with the billings from the AAA and the AAA matched the vouchers with the obligations. A reconciliation process was required to ensure obligations had been established, the payment matched the obligation, proper documents had been submitted and the proper account was charged for the expenditure.



As the disbursing system was not dependent on the accounting to make a payment, the cash reports submitted to higher authorities were extremely accurate. The accounting reports, on the other hand, did not accurately reflect the transactions of the period.

### 3. IDA Concept and System Design

As part of the Secretary of the Navy's Financial Management Improvement Program (FMIP), the Navy initiated a program to improve the financial information obtained through the dual accounting and disbursing system. Due to the processing methods, requirement for hard copy documentation and reliance on the postal system for data transmission, the system was inadequate in providing accurate accounting information. It was estimated that at any given time, approximately two billion dollars of payments made through the disbursing system were not recorded as distributed expenditures on the official accounting records. [4:i] In addition, the need for memorandum records, duplicate files and multiple reconciliations resulted in the poor utilization of accounting resources. IDA is a system designed to improve the accuracy and timeliness of financial information, while reducing the costs associated with the process. [12:22]

As the name implies, IDA is designed to combine the functions of disbursing and accounting into a centralized unit which will respond to the requirements of management. IDA does not change the basic features of the system, only the method of reporting and processing of financial data. This





will be accomplished through the use of automated data processing, advanced telecommunication techniques and a centralized, integrated data base. [11:38]

Integration of the data is to be achieved through the development of a Financial Information Processing System (FIPS). The FIPS will consist of a Central Accounting and Finance Office (CAFO), 16 Financial Information Processing Centers (FIPC) and 3 Financial Processing Centers (FPC). Utilizing the telecommunication network and automated data processing techniques, the FIPS computer system will enable the on-line activities to have and exchange near real time information. The program design estimates that financial data in the system will be available within 24 hours. [4:3-10]

Under the direct control of the Navy Accounting and Finance Center (NAFC), the CAFO will be responsible for the accounting discipline and control of the FIPCs. The CAFO will be organized as the central data base, maintaining the summary accounts used to provide the required information of higher authorities. In addition, CAFO will function as the central distribution point for all International Balance of Payments, Interfund Billing System and conduct the cross-service disbursing transactions. [4:4-13]

Under the functional/operational control of the major claimant, a FIPC will provide the full range of accounting and disbursing functions for the operating budget holders and sub-claimants within its geographical region. The disbursing functions will include: cash and check payment of commercial



invoices, temporary duty travel claims, civilian payrolls and cash and check collections from all sources. In performing the accounting function, no changes will be made to the officially prescribed accounting reports. Since the reports will be formulated through the integrated data base, the need for reconciliation will be reduced for on-line users. If the number of FAAs or the quantity of transactions exceed the capability of the FIPC, a FPC will be established as a satellite of the FIPC to assume the FIPC functions for the assigned FAAs' accounts. The FPC will have the same capability as the FIPC.

[12:23]

Those FAAs with large volumes of transactions will be provided with remote terminals enabling them to enter financial data directly into the data base. The terminal will also allow the user to obtain a cathode ray tube display of inquiries made by them concerning their official accounts. FAAs not meeting the criteria for a terminal will be allowed to share the terminal of another activity if it is geographically feasible. It should be noted that FAAs which do not have access to remote terminals will continue to forward hard copy documentation, by the fastest means available, to the FIPC for entry into the data base. Although many of the previous system's problems will exist, there will no longer be a geographical separation of the AAA and NRFC. In addition, the processing at the FIPC will be improved to reduce undistributed disbursements.

In accomplishing the objectives of timeliness and accuracy, the modern data processing and telecommunications will



substantially reduce the clerical expenses in terms of data file maintenance, reconciliations, corrections and processing. Consolidation of functions will eliminate the NRFCs and reduce the AAAs in the United States (present IDA development only involves 88 AAAs) to 19 FIPCs/FPCs. [12:27] It is estimated that during the first ten years of operation, IDA will result in a 30 million dollar cost savings over the development and implementation of the system. These savings are in terms of personnel, automated data processing equipment and data base consolidation. [4:ii]

#### 4. Implementation

As is true with any new system, the implementation of IDA was regarded as extremely critical to its success. IDA was not a complete package, ready to install. Development was to be a slow process utilizing prototype activities representing a cross section of the financial system. There are three distinct phases of implementation.

Phase I is the initial integration of the AAA and NRFC. Documents normally processed through the NRFC will be forwarded directly to the AAA. This requires a processing exchange between the AAA and NRFC. The AAA will establish an accounts payable in the accounting file, retain the documentation and forward a certified tape to the NRFC for entry in its Automated Public Voucher System (APV). The NRFC will make the payment and notify the AAA to credit the accounts payable and record the expenditure. [4:5-7]

Phase II involves the complete integration of the NRFC and AAA, introduction of random access data base and expansion





of the telecommunication network. The AAA will perform the check writing function of the NRFC while providing the NRFC with financial reports. The random access data base will allow for data input and information retrieval by the customer activities. At the end of Phase II, hard copy documentation will be retained at the activity inputting the data. [4:5-7]

The Fleet Material Support Office's (FMSO) IDA design includes three subdivisions of Phase II. Phase IIA establishes the check generation process and a limited remote terminal capability for the larger FAAs. Phase IIB expands the teleprocessing network and increases the remote terminal capability. Phase IIC, currently referred to as IDA/URMS (Uniform Resource Management System), represents the full integration of a random access data base and provides the capability to make the required reports to higher headquarters through the FIPS in Phase III. [3:46]

Phase III is the final phase of implementation which is the establishment of the FIPS. The FIPCs and CAFO will be established and linked together through the telecommunications network. [4:5-8]

Two major modifications have been made during the implementation process. Rather than major claimants having their operating budget holders reporting to different FIPCs, the geographical restraints have been lifted allowing all activities of a major claimant to report to a specific FIPC. This change was made because major claimants were concerned with the issuance of financial reports without their verification





of the information. Now the CAFO will receive only the summary information of the major claimant. The second revision was to designate one FIPC on each coast, referred to as the Fleet Accounting and Disbursing Center (FAADC), to process the Fleet Commander's financial information. The FAADC will assume the fleet accounting responsibilities held by the Fleet Aviation Accounting Offices (FAAO) and NRFCs.

#### 5. Cash Management in the Design of IDA

Although published prior to the President's study on cash management and the Treasury's guidelines, the IDA General Design Manual addressed the issue of cash management. The following was extracted from the manual and was restated in FMSO's Phase IIC Design Manual.

Cash Management. There are two schools of thought relative to cash management in the federal government. One school of thought (expressed by OMB) is that commercial bills should be paid as expeditiously as possible and that all discounts should be taken. The other school of thought (expressed by the Treasury) is that commercial bills should be delayed until the due date in order to reduce the federal cash requirement. The IDA process should be developed to accommodate whichever of these policies is finally directed for implementation. The IDA system is being designed in a highly mechanized mode. Design of the disbursing module of this system incorporates features which mechanically process dealers' bills expeditiously through the system to the point of issuance of the check to be accomplished on whatever date is considered most advantageous to the government. Thresholds can be established whereby payments under designated amounts can be made in routine processing (such as amounts under \$50) and payments in excess of that amount can be deferred to obtain the maximum benefit to the government.



C. NAVAL EDUCATION AND TRAINING FINANCIAL MANAGEMENT  
SYSTEM (NETFMS)

NETFMS was developed by the Chief of Naval Education and Training independently of IDA to meet their resource management needs. The basic concepts are the same as IDA as it utilizes a random access, integrated data base, modern automated data processing and telecommunication techniques. Whereas IDA was designed to provide more accurate financial information at the upper level of management, NETFMS is directed at meeting the needs of the comptroller as he has the ability to develop budgets, evaluate budget execution and provide the required financial reports. [3:67] In essence, it will accomplish the same objectives of timeliness and accuracy as IDA and is equally capable of meeting the Treasury's cash management requirements.

There was much discussion as to which system should be used to meet the financial needs of the Navy. It should be noted that NETFMS is fully operational with twenty-three on-line activities as compared to IDA/URMS which will not be fully operational until fiscal year 1983. It was, however, determined by NAVCOMPT that IDA/URMS will better meet the needs of the Navy as it will utilize minicomputers rather than the mainframes required for NETFMS. NETFMS is regarded as an excellent interim system which would be modified to interact with the FIPS.



### III. PRESENT METHOD OF PROCESSING COMMERCIAL TRANSACTIONS

In this chapter, the process currently employed in the IDA implementation is discussed. Although improvements are planned in future IDA development, this process will continue due to the requirement for receipt certified, original invoices by the disbursing officer. (The requirement is contained in Appendix B.) The process reflects the observations of the author at a Funds Administering Activity (FAA) with no terminal linkage with the Financial Information Processing Center (FIPC) and a FIPC which is the Phase IIB prototype.

#### A. PAYMENT CERTIFICATION PROCESS

Payment certification relates to the administration of commercial accounts which includes the receipt and certification of commercial invoices and the verification and review of approved payments. [4:2-19]

##### 1. Requirements of the FAA

The FAA is responsible for the expenditure and reporting the use of funds in the accomplishment of its mission. Figure III-1 depicts the procurement and receipt certification of commercial invoices by a typical FAA.

##### a. Establishment of an Obligation

When an authorized individual determines that a good or service from a commercial vendor is required, a purchase request is submitted to the Purchasing Division. The purchasing agent, in turn, determines the most appropriate



CURRENT COMMERCIAL INVOICE PROCESSING AT THE FUNDS ADMINISTERING ACTIVITY

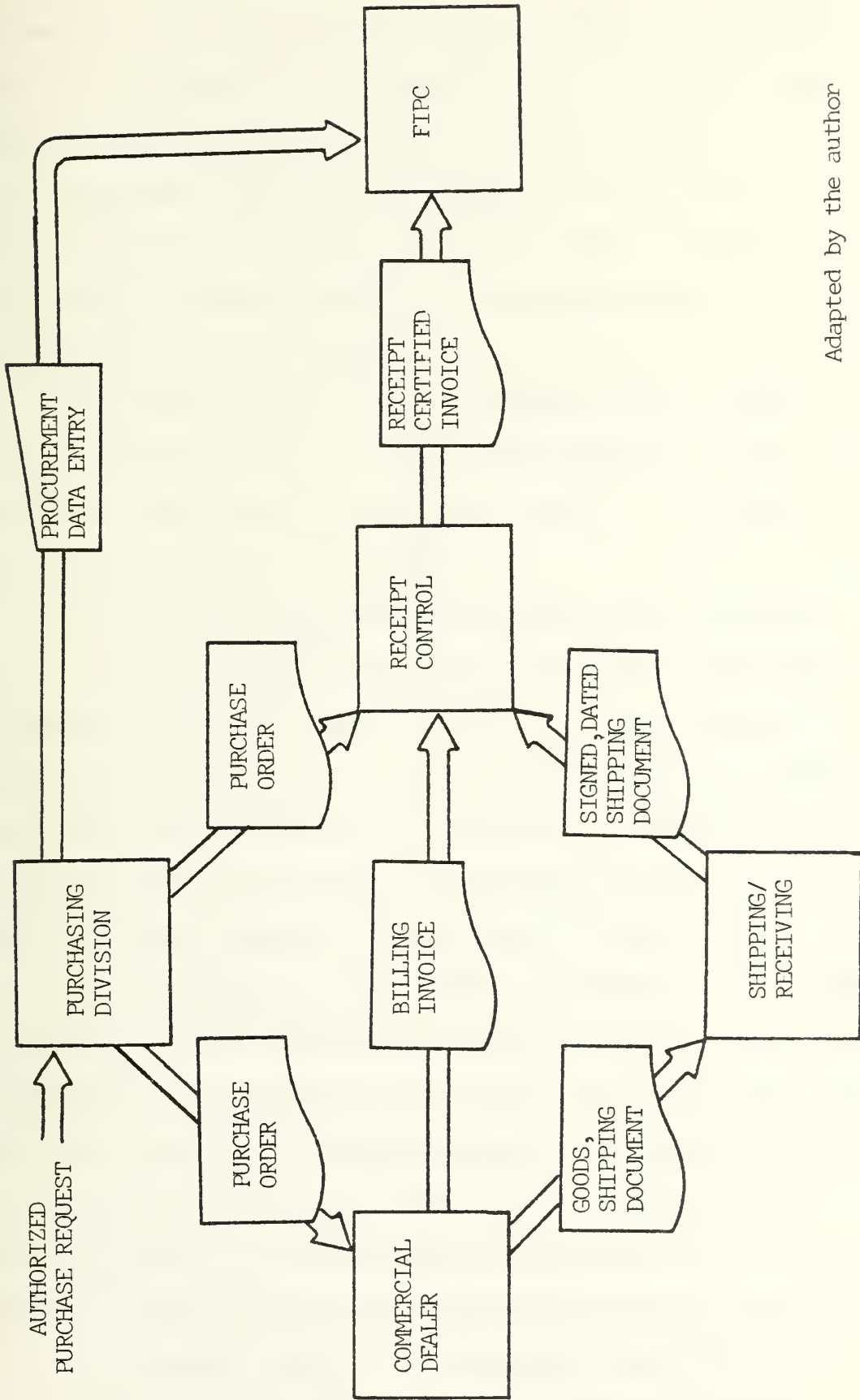


Figure III-1

Adapted by the author





procurement process to be used. In the case of a purchase order, it is signed by the purchasing agent and provides written authorization to a vendor to supply a specified quantity of described goods at predetermined prices and terms. A copy of the purchase order (DD Form 1155) is forwarded to Receipt Control, whose duties are discussed below, for invoice processing and receipt certification. If the FAA has an on-line, input terminal, the data is entered into the official accounting records at the FIPC as an obligation. If the FAA does not have the entry capability, a copy is forwarded to the FIPC for entry into the data base.

b. Invoice Processing and Receipt Certification

All commercial billing invoices are processed by the Receipt Control Division of the FAA. Upon receipt of the dealer's billing invoice, Receipt Control will date stamp and assign a document number to the invoice. It should be noted that the billing invoice may be included with the shipping document but will normally arrive prior to the goods.

Materials received from the dealers are unloaded and unpacked by the Shipping/Receiving Division. This division is responsible for inspecting the goods for damage and comparing the quantities received against the shipping documents. Any discrepancy in quantity and/or damage is reported to Receipt Control. If no discrepancies are noted, the shipping document is dated, signed and forwarded to Receipt Control.

Receipt Control is primarily responsible for matching the shipping document, dealer billing invoice and



purchase order to ascertain propriety for payment. The shipping document and billing invoice are compared to the purchase order specifications as to items, quantities, prices, discounts and credit terms, and any other possible conditions. Exceptions are resolved with the dealer and/or Purchasing Division. In addition, Receipt Control must determine the following from the documents.

(1) Payment Due Date and Discounts. The due date is determined from the date of delivery of the material or from the date the correct invoice is received, if the latter is later than the date of delivery. If discounts are available, the discount due date and the discounted amount are determined. In order to receive prompt processing at the FIPC, all discount available invoices are tagged with a brightly colored sticker for easy recognition by the Documents Control personnel at the FIPC.

(2) Final or Partial Payment. If all materials are received as specified in the purchase order, then a final payment will be authorized which will eliminate any excess obligation that may exist on the official accounting records. If only part of the order has been received, the FAA may elect to pay for the material received to date and retain the remainder of the obligation on the accounting records. In this case, a partial payment would be authorized.

(3) Presence of all Necessary Accounting Data. Until recently, Receipt Control was required to fill out two eighty-column forms with the accounting data required to



process and make payment by the FIPC. Due to the increased requirements of invoice processing by FAA personnel, these forms are no longer required as long as Receipt Control ensures the necessary information is contained either on the invoice or purchase order. The necessary data includes; document number of the invoice, accounting classification reference number (ACRN), quantity received, unit price, procurement instrument identification number (PIIN), date of billing invoice, credit terms, discount availability and the commercial vendor's name and address.

Once all this information has been determined and the shipping documents and invoice match the purchase order, the purchase order or billing invoice is signed. This represents receipt certification of the invoice for payment. The original billing invoice and purchase order are mailed to the FIPC for entry into the data base and payment of the invoice.

## 2. Payment Verification and Certification at the FIPC

Under the present method, the FIPC is responsible for certification and payment of commercial invoices. Figure III-2 depicts this process at a Phase IIB FIPC.

The purchase order and billing invoice are received from the FAA and processed by Documents Control. The documents are initially sorted into tagged and non-tagged invoices. The tagged invoices are processed first to ensure no discounts are lost due to the normal processing routines which require three days for the check to be prepared and mailed. Those documents in which the discount will be lost by the normal process must



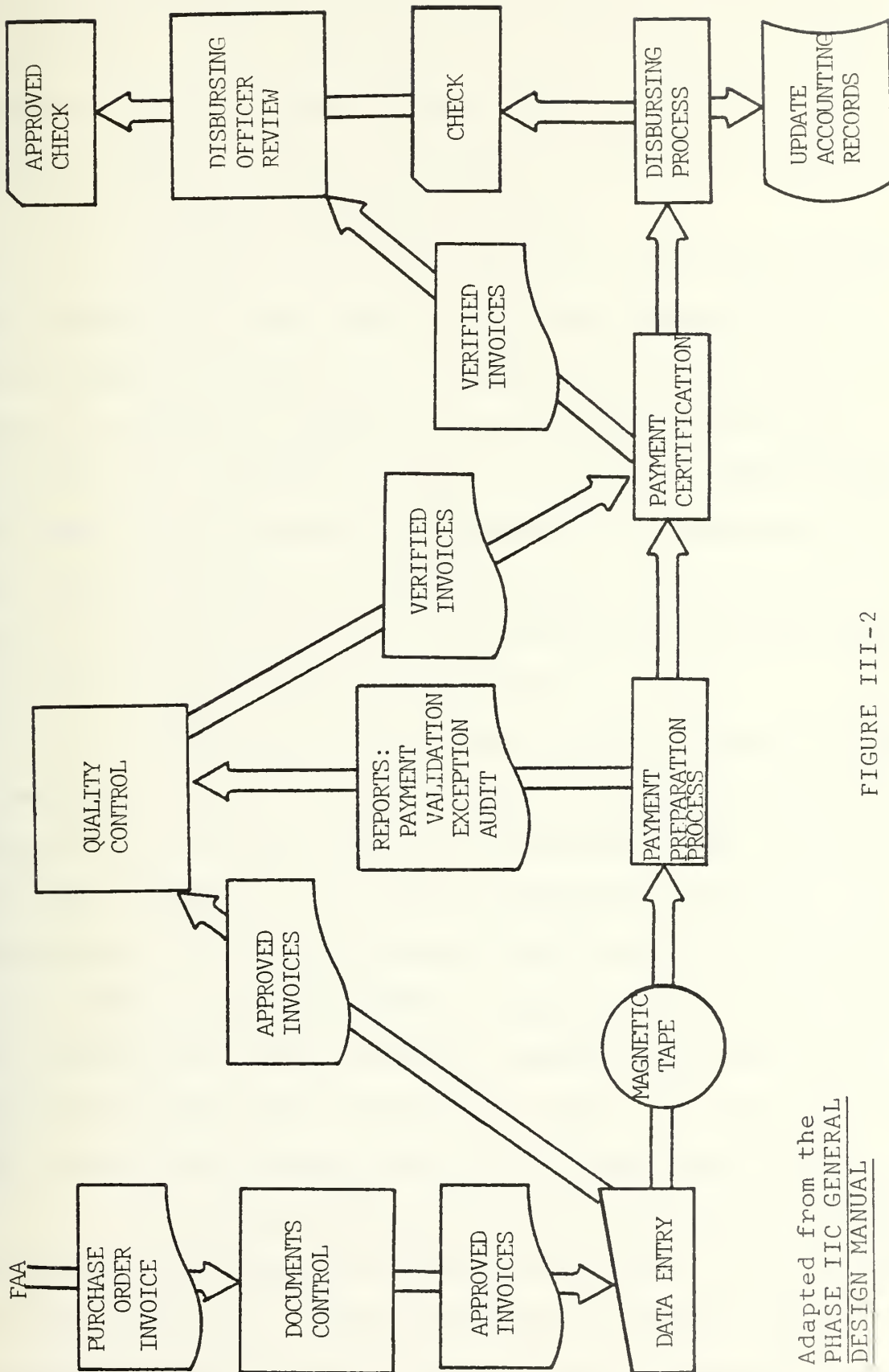


FIGURE III-2

Adapted from the  
PHASE IIC GENERAL  
DESIGN MANUAL





be manually processed if the discount amount is considered significant. At the observed FIPC, significance was established at fifteen dollars. This is the estimated cost to manually compute, certify and prepare a check for payment.

a. Payment Preparation Process

Documents Control reviews the documents to determine if they have been sent to the proper paying office, a valid receipt certification is affixed and that the original invoice is present. Documents not in compliance will be returned to the submitting FAA for correction. Those documents that meet the requirements are referred to as approved invoices. The approved invoices are then examined to determine if a discount is available which has not been previously identified and that all data elements are present.

Before the invoice data is entered into the payment preparation routine, Documents Control, through the inquiry capability of on-line terminals, determines if an obligation has been recorded in the official accounting files for the transaction. FAAs with terminals should establish the obligation when the purchase order is approved. For those activities which do not have terminals, Documents Control enters the data directly from the purchase order. In the past, they have entered the necessary data for any approved invoice.

The data required in the payment process is then circled or highlighted for ease of recognition and entry by terminal operators. During the entry of the data, edits are performed by the terminal to ensure that all required data are



entered and the elements are in the correct format. Due to the additional edits and need for quality control, the data are not entered directly into the data base but on a magnetic tape. At the end of the normal workday, the tape is run through the payment preparation process in which further edits are performed and three reports are generated. These reports include the Payment Validation Report, Payment Exception Report and the Routine Transaction Audit Report.

(1) Invoice Editing. Invoice editing is an automatic check of the data entered during the payment preparation process with the information previously entered in the data base. The edits include the following:

(a) Verification of the existence of a valid obligation and that the payment will not exceed the amount obligated.

(b) Verification that a previous payment for the invoice has not been made.

(c) Verification that each line item of the invoice is within the limits specified by the contract.

(d) Verification of the terms and discounts and ensuring that the government is selecting the most advantageous if a difference exists.

(e) Verification that the contract data verifies the propriety of request for advance or progress payments.

(f) Verification that the contractor is not on the payment hold-up list. [5:I-46]



(2) Payment Validation Report. The Payment Validation Report is a listing of the transactions which have passed the edits of the payment preparation process. In addition, these transactions have been posted to the accounting records as accounts payable. The report is the basis for specific review of the FIPC computer processing against the approved documents submitted by the FAA. The payment certification officer uses a copy of this report to indicate his certification of the tentative payments. [5:II-16]

(3) Payment Exception Report. The Payment Exception Report is a list of those approved invoices that have been rejected by the payment preparation routine for any reason. This includes invoices that have been intentionally deferred. The report contains the reason for rejection or deferral and is the basis used to correct erroneous transactions. [5:II-21]

(4) Routine Transaction Audit Report. The audit report is a computer generated random sample of the transactions that have been included on the Payment Validation Report. The report was designed to be used by Quality Control, whose duties are discussed below, to randomly perform manual checks of the tentative payments computed in the payment preparation process.

b. Payment Validation by Quality Control

After the data has been entered on the tape and the payment preparation process has been executed, the hard copy documentation and the generated reports are forwarded from Documents Control to Quality Control. Quality Control's



responsibilities include separating the invoices contained in the Payment Validation Report from those on the Payment Exception Report, verifying the accuracy of the tentative payment computations of the process, and resolution of the suspense file of transactions contained on the Payment Exception Report.

After sorting the documents for transactions contained in the Payment Validation Report, Quality Control must conduct a manual review and computation of the amount due for the transactions contained in the Transaction Audit Report. If the checks are within established tolerances, the Payment Validation Report is dated, signed by Quality Control and forwarded to the payment certifying officer. If errors exceed the tolerance limits, either a larger sample size is taken or the entire Payment Validation Report is manually examined.

[4:3-26]

Upon completion of the verification of the Payment Validation Report, Quality Control attempts to resolve the payment exceptions. This requires close liaison with Documents Control and/or the FAA.

#### c. Payment Certification

The signed Payment Validation Report essentially is the basis for payment certification. The report and the documentation are forwarded to the payment certification officer for his review and signature. The signature of a designated certification official substantiates the validity of the systems audit process. [4:3-29]





Since Title 31 of the United States Code, paragraph 82B (See Appendix B) holds the disbursing officer liable for all payments of commercial invoices, the disbursing officer must perform the duties of the certifying officer. As the law is being interpreted, the certifying function does not relieve the disbursing officer of his legal liability for payment computation and the responsibility cannot be delegated. For his own self interest, the disbursing officer has retained control of the certifying process performing the duties as certifying official.

#### B. DISBURSING PROCESS

After the Payment Validation Report has been certified for payment, the transactions contained in the report are ready to enter the disbursing process. This process utilizes the same tape as in the payment validation process, thereby requiring the transactions contained in the Payment Exception Report be corrected and certified, or removed from the tape. Certified transactions can also be added. These would include the approved invoices that were manually computed to ensure that a significant discount was not lost. The magnetic tape is run through the disbursing routine at the end of the second day of the normal process.

In the morning of the third day, the checks and reports are ready for the review and signature by the disbursing officer. The disbursing routine also updates the official accounting records and generates the reports required by the Navy Comptroller (NAVCOMPT) Manual.



#### IV. ANALYSIS OF THE PRESENT SYSTEM, PROBLEMS AND ALTERNATIVES

##### A. ANALYSIS OF THE PRESENT SYSTEM

In the analysis of any system or organization, the evaluation criteria must be specified. The two criteria used for judging the performance of the present IDA system are effectiveness and efficiency. Effectiveness may be defined as the relationship between actual output and pre-established objectives. [1:19] Efficiency is the ratio of output to input or the comparison of the resources used if output remains constant. [1:19] In this section, the author's analysis is based on the Phase IIB Financial Information Processing Center (FIPC) prototype at the Naval Supply Center, San Diego, California.

##### 1. Effectiveness

The primary objective of the FIPC, from the cash management perspective of this study, is to process and make payment of commercial invoices submitted by the Funds Administering Activities (FAA) which it serves. In addition, payments to vendors must be made within the dates specified on the invoices. At the present stage of implementation, the FIPC processes an average of 6000 invoices each month in which the majority are paid on or before the specified due date (less than 300 invoices are 30 days old indicating more than 96 percent are paid on or before the due date). If a measure of effectiveness was established as the government average of 70 to 85 percent (Chapter II), the FIPC does make prompt



payments for the FAAS it serves, therefore meeting its primary objective.

The present process also meets the majority of design objectives of IDA. The accounting and disbursing functions have an appearance of being an integrated data base because it performs the functions of an integrated data base. Since the disbursing process prepares the check and updates the official accounting records, the undistributed disbursements for payments requiring certified invoices have been virtually eliminated thereby improving the accuracy of the financial reports. A major deficiency in meeting the IDA objective is in the certification process which requires the transmission of the original billing invoice and the certification that the goods or services have been received.

Under the present system, the billing invoices and receipt certification are required to be sent to the FIPC before the payment processing can begin. The FIPC functions use the hard copy documents as follows: Documents Control for the entry of the data into the system, Quality Control for the necessary checks of the Payment Validation Report and resolution of problems in the Payment Exception Report, certifying officer for certification of the Payment Validation Report, and by the disbursing officer for the review of the payments and to serve as an audit trail. According to the law, the disbursing officer is held liable for a check drawn on the Treasury for which there is no certified invoice. (Appendix B, Para. 82B).





Transmission of hard copy documentation can delay processing of the transaction three to seven days due to preparation for and delivery through the postal system.

[4:ii] A design objective of IDA was to have the financial reports submitted to higher authorities within five days of the end of the month. Although the inaccuracies due to undistributed disbursements have been resolved, the accounting records will continue to reflect inaccuracies similar to those of the pre IDA system. Due to delays caused by document transmission, FAA expenditures for commercial contracts during the last week of the month will not arrive at the FIPC in time to be processed and included in the report unless the report submission date is changed. No matter how effective and efficient the FIPC can become, reports will not fully represent the financial status of activities until delays associated with hard copy document transmission are eliminated.

## 2. Efficiency

Both IDA and the Treasury's cash management guidelines are designed to make the commercial invoice processing more efficient while providing prompt payment to the vendors. IDA will reduce the five Naval Regional Finance Centers (NRFC) and 88 Authorized Accounting Activities (AAA) to 19 Financial Processing Centers and will reduce the personnel required for memorandum file maintenance and invoice reconciliations. Cash management will reduce the federal cash requirements. It is estimated that if the Treasury's guidelines are implemented throughout the federal sector, the annual financing of funds could be reduced by at least 175 million dollars. [14:8]





Although the FIPC meets the primary effectiveness criteria, the efficiency of the commercial invoice certification and payment process can be improved significantly. The major deficiency is due to the requirement for submission of the original billing invoice and receipt certification. Not only does the preparation and transmission of the documents cause delays, but it takes time and effort which increase costs. Duplicate files are maintained by the FAA to reconcile differences in the official accounting records and the memorandum records of the FAA. Problems involving lost documents or improper charges to the FAA accounts require personnel at the FAA and FIPC to resolve the problems.

The Phase IIB process has been waived from compliance with the Treasury's cash management guidelines by the Navy Comptroller (NAVCOMPT). Modifications to Phase IIB would require the system designers to divert attention from the IDA/URMS development. There are two major revisions required of the Phase IIB process that must be resolved in the IDA/URMS design. The problems are the check preparation process and the method of taking discounts.

a. Check Preparation and Payment Process

In Phase IIB, the disbursing and accounting functions only appear to be fully integrated. During the design, it was determined that complete integration, allowing full data exchange, would involve major alterations to the accounting and disbursing process which could impair the implementation of IDA if personnel became disoriented with the process and



the FIPC was not able to accomplish its primary objective of paying bills.

As a result, no major changes were made to the payment certification and disbursing functions employed in the pre IDA system. The temporary process used during this transition period is referred to as IDA/DX (DX for data exchange), which establishes the methods in which billing invoice data entered in the payment certification process will be interchanged with accounting files and disbursing functions. As discussed in Chapter III, billing invoice data is compared to the accounting file data during the system's automatic edit routine and in the disbursing routine when the payment tape also updates the accounting records. The program does not provide the capability for data contained in accounting files to be entered in the disbursing routine.

When the Treasury's guidelines were published, FMSO was faced with a problem. The basic payment certification and disbursing routines were not designed to allow for the delay of payment until a specified date. As discussed in Chapter II, the disbursement practice had been a policy of payment on a first-in, first-out basis. Modification of these routines was possible but would not support efforts to integrate the accounting and disbursing functions, and the present stage of development was not an appropriate time for major system changes. The decision was made by NAVCOMPT to waive the cash management guidelines of delaying payments to the due date for IDA/IIB.



The effect of this waiver on the cash requirement of the Treasury can be estimated. At the FIPC, the average monthly value of commercial invoices without discounts is approximately seven million dollars. Assuming the interest rate paid by the government is twelve percent and the average amount of invoices paid early is eighty-five percent [7:14], the interest cost to the government for each day in advance the payment is made can be calculated by multiplying the daily interest rate times the value of the invoices paid early.

$$[(.12/12) (1/30)] \times [(.85) (7,000,000)] = \$1983/\text{day}$$

If only 70 percent of the invoices are paid early instead of the 85 percent, the daily cost is \$1633 for each day in advance the payments are made. The cash management study (Ref. 7) stated that bills are paid several days in advance of the due date. Given this information, the minimum interest cost is \$3266 (2 days x \$1633) with the author's best estimate being three days or \$5949 (3 days x \$1983). This represents an annual cost of \$71,388 (12 x \$5949).

#### b. Cash Discounts

The cash management guidelines specifically state that no special handling should be required for the processing of invoices offering discounts. As most discounts require payment in ten or fifteen days of receipt of the goods, the transmission delays require the FIPC to sort and process discounts at the beginning of each day. When significant discounts require payment in less than the normal three days, the FIPC must manually process the transaction to ensure the discount





is not lost. If required, the payment can be manually computed, verified and certified which will circumvent the payment preparation and certification routines of Phase IIB.

At the FIPC for the last two months in 1979, discounts were lost on 20 percent of the invoices allowing discounts, which resulted in 10 percent of the dollar value of possible discounts being lost. This is considered as a fair representation of the average loss. This loss represents approximately 300 dollars a week. Interviews indicated three basic reasons for the losses: failure to properly tag the invoices at the FAA; transmission and handling delays; and failures at the FIPC due to handling, program malfunctions and rejection through the audit routine.

The FIPC has not implemented the criteria for taking discounts as directed by the Treasury. Only discounts of fifteen dollars or greater are manually processed. As stated earlier, this figure was established as the minimum due to the estimated cost of manually processing an invoice, not the cost of capital.

It is interesting to note that the existing controls make it difficult to determine who is at fault in the loss of a discount. FAAs may claim that they properly identify and tag all discounts, while the FIPC claims that many of the discounts are not tagged and many more discounts would be lost if not for the conscious effort of Documents Control. Discounts will continue to be lost until a transmittal control system is developed which can trace the cause of lost discounts or can





hold a single activity or function responsible for taking discounts. Better controls or a single source of responsibility would result in a more efficient process as fewer discounts would be lost.

## B. ALTERNATIVES TO ENHANCE THE PRESENT SYSTEM'S CASH CASH MANAGEMENT

In the analysis of Phase IIB, two problems can be identified which prevent the process from complying with the cash management guidelines. First, the process does not have the ability to delay the payment of an invoice, and second, the requirement for hard copy document transmission causes processing delays and requires a special handling process for invoices with discounts. In this section, alternatives to solve these problems will be discussed. The author's research indicated that modifications can now be made to the present method or designed into IDA/URMS to enhance cash management without adversely affecting the implementation of IDA.

### 1. Inability to Automatically Delay Invoice Payment

Phase IIB does not have the capability to internally delay the payment of an invoice until its due date. In order to resolve this problem, the system must be modified to allow entry of only the data for invoices due into the disbursing process. This will require that the system has the ability to store the invoice data in a file which can be accessed according to the due date. Although the process could be accomplished with magnetic tapes, this would be



awkward and an inefficient use of computer time. A better alternative would be to have the tape that is prepared daily to be entered on an on-line, random access storage device prior to the disbursing routine which prepares the check. Since the accounting records are on-line, the most efficient and logical storage location would be in the accounting files.

Since the accounting files represent the official accounting records, only certified data should be entered. The author recommends that the certified-for-payment tape be run to update the accounting files. This would establish the accounts payable file which could be accessed by pointers or some other type of random retrieval technique according to due date to provide the input data for the check preparation routine. A sequential printout of the input data could be used by the disbursing officer for the verification and issuance of checks.

It should be noted that this method will reverse the data interchange between the accounting and disbursing functions. Rather than the disbursing function providing the data to update the accounting records, the accounting files will provide the data to perform the disbursing function.

## 2. Reliance on and Transmission of Hard Copy

### Documentation

In the payment of commercial invoices, the Navy complies with the provisions contained in Title 31 of the United States Code (i.e., disbursing officer must examine vouchers and be held accountable. See Appendix B.) Since the



certification of the payment validation report by a designated official other than the disbursing officer does not relieve the disbursing officer of the responsibility of incorrectly computed payments, he must require the hard copy documents for computations, proof of public vouchers and an audit trail. During the design of IDA, it was realized that if the disbursing function was to be centralized, hard copy documents would have to be transmitted to the centralized location.

In an attempt to eliminate the need for transmission of the documents, the Navy requested the support of the other armed services to have paragraph 82B of the United States Code changed to recognize the function of a certifying official who is separate from the disbursing officer. (Paragraph 82B is contained in Appendix B.) It should be noted that the Department of Defense (DOD) is the only federal agency that has the authority to prepare checks against the Treasury except the Department of State in overseas activities. This effort to change the law failed to gain the needed support as it was believed by some that recognition of certifying officials could be the first step to the elimination of the DOD's disbursing function within the continental United States.

The failure to eliminate the mailing of hard copy documentation from the FAA to the FIPC is the primary cause of the loss of discounts. In order to significantly reduce the transmission delays, three possible alternatives were considered.



a. Perform the Disbursing Function at the FAA Level

Probably the most apparent alternative to the elimination of the transmission of the documents and reliance on the postal system is to have the commercial invoices processed, certified and paid by the disbursing function located at the FAA. There is a disbursing function at the FAA or in the surrounding area which has been established to manage the processing and payment of military personnel. The scope of the disbursing function could be expanded to include payment of commercial invoices. The Army is employing this concept in the redesign of the Standard Finance System (STANFINS). The telecommunication network would be used to interchange accounting data with the centralized data base while the disbursing function would be decentralized.

In the design of IDA, the other projects of the Financial Management Improvement Program had to be considered such that the design would complement the other projects. A joint project, composed of the Military Pay Systems Improvement Project (MPSIP) and the Pay/Personnel Administrative Support System (PASS), is designed to improve the timeliness and accuracy of the military pay system through centralization of the disbursing function. A disbursing officer at a regional Personnel Support Activity (PSA) will perform the disbursing functions for the activities in the area and will be regarded as an Associate Disbursing Officer reporting to the Central Disbursing Officer in the FIPC. Deputy Disbursing Officers will be located at satellite support activities,





reporting to the Associate Disbursing Officer and providing limited services to military personnel within the area. These services will mainly consist of liquidation of travel claims and payment of transient personnel and the local administration of the Joint Uniform Military Pay System.

[9:35]

Based on the FMIP's goals of centralization of the disbursing function, this alternative does not appear to be an acceptable solution to the elimination of the delays due to the requirement for hard copy documents.

b. Require Commercial Invoices to be Sent Directly to the FIPC

As discussed in Chapter III, the Navy determines the payment due date for a commercial invoice from either the delivery date of the goods or the date the correct<sup>3</sup> invoice is received, whichever is later. Under this alternative, the date of receipt of the invoice would be the date it was received by the FIPC, not the FAA. If the FIPC receives the invoice prior to receipt of the goods by the FAA and the FAA is required to submit hard copy receipt certification before the FIPC can process the transaction, similar delays to the current process will be experienced. To prevent the delay, this alternative will require the FAA to enter, through an on-line terminal, receipt certification directly into the

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<sup>3</sup> An invoice is regarded as correct if the quantity, quality and prices agree with the data contained in the purchase agreement and shipping documents.



data base. The FIPC will be responsible for calculating the amount of the payment and taking the appropriate discounts.

There is a procurement management system being implemented by the Navy which could permit the interface of the procurement of goods and services and the payment of those services through the FIPC. The Automation of Procurement and Accounting Entry II System (APADE II) is an on-line management information system which allows near real time tracking of procurement actions from the request for a service to the payment of the invoice. Interface with IDA would enable the procurement division to enter the obligation into the official accounting records. [10:44] When the goods or services are received by the FAA, entry could be made to establish the delivery date and certify the quantity and quality. Provided proper measures are taken at the FAA to prevent fraud and abuse of the system, the requirement for hard copy receipt certification would be eliminated. Some possible security controls are presented in Chapter V.

Although this alternative does provide a solution which conforms to the FMIP goals, possible problem areas tend to offset the benefits.

(1) Limitations of the FIPC. In the analysis of the effectiveness of the FIPC prototype, it was concluded that the Phase IIB process has been able to meet the needs of the 275 activities it serves. When the Financial Information Processing System (FIPS) is fully implemented in Phase III, many of the activities currently served will be transferred to the Fleet Accounting and Disbursing Center (FAADC)



located in the same building. The FIPC will gain other activities increasing the total activities served to 300. Although the FAA increase does not appear to be significant in numbers, interviews with the FIPC personnel revealed that the processing of commercial invoices is expected to more than double. Even if the current processing procedures are continued, there will be a requirement for a substantial increase in personnel and equipment in an already crowded space.

This alternative will place additional requirements on the FIPC. In particular, the FIPC would take over the duty of Receipt Control Division of the FAA in ascertaining propriety for payment. Most of the calculations and comparisons can be performed within the system, but the exceptions will require liaison with the activity or vendor.

Before this alternative can be considered acceptable, a feasibility study of the capabilities of the FIPC must be conducted.

(2) Commercial Vendor and FAA Relations. One of the major considerations in the design of a system to process commercial transactions is to ensure that the system will make the payment within a time frame which is acceptable to the commercial vendor. If a dealer becomes dissatisfied in the promptness of the Navy's payment of bills, he may discontinue to provide the service or require payment at the time of delivery. Interviews with the Supply Department at





the Naval Postgraduate School (NPS) indicated that this situation occurred during the Phase I implementation at NSC Oakland, California.

Even though the check will be prepared at the FIPC no matter who receives the invoice, certain factors could adversely affect the relationship that exists between the FAA and the vendor. First, the time delay due to the transmission of the invoice through the postal system will delay the payment to the vendor by the same amount unless a specific due date is included on the invoice. This float (i.e., time bill is in the mail system) would be advantageous to the Navy, but one must assume that commercial vendors are also aware of the time value of money. This problem will not exist if the vendor mails the invoice prior to the shipment of the goods, but this could cause more exceptions in receipt certification. Second, the reconciliation of differences in the billing invoice, shipping document and purchase order can delay the settlement of a valid invoice. One option available to the FIPC when exceptions occur is to return the invoice to the vendor and have the vendor and FAA resolve the differences. The payment due date would be determined when the corrected invoice is received. The FIPC could attempt to resolve the exceptions through the phone system, or an on-line capability could be designed into the IDA program. No matter what method is used, it will take more time than if the activity alone would deal with the vendor. It should be noted that this problem does exist under the present





process, but a close liaison with the dealers can maintain a sound working relationship.

Under this alternative, the FAA must rely on the information in the system to answer questions by vendors concerning the payment of an invoice. If the data has not been entered and accepted by the system, there is very little the activity can do. It will be extremely difficult for the FIPC to provide information not contained in the system. Explanations as to the payment of amounts different than the amount stated on the invoice could be difficult to obtain. All this can lead to a helpless feeling on the part of the FAA and anger by the dealer.

As previously stated, this alternative could be implemented and would enable the government to realize the full benefits of the cash management guidelines of the Treasury Department. It is the author's conclusion that this alternative should be accepted only if no better alternative is available. It clearly does not optimize the system.

c. Perform the Certification Function at the FAA

On the surface, this alternative appears to be a clear and flagrant violation of the law. The Navy attempted to have the law changed to recognize the role of a certifying official who would be responsible for the computation of the payment while the disbursing officer would be responsible for the differences in the amount paid and the certified amount. Although the Navy failed to gain the



support required to change the law, this still appears to be a feasible alternative because the following actions and interpretation of the law seem to be flexible enough to allow the disbursing officer to pay the amount certified by an official of the FAA.

(1) Preparation of the Civilian Payroll. In Chapter 5, part A, of the NAVCOMPT Manual, the finance officer is authorized to prepare and certify the civilian payroll. "He is administratively responsible for all errors in computations...." The disbursing officer pays the amounts certified after a sight audit for obvious errors and reasonable amounts. "In lieu of the verifying of each item reported on the payroll by detailed audit, the disbursing officer, by review of the procedures followed in the payroll office, should satisfy himself as to the accuracy of the results produced." In addition, the disbursing officer may observe or control the verification process.

(2) The General Accounting Office Report. In November 1977, GAO published a report, "New Methods Needed for Checking Payments by Computer" which recognized that it is no longer possible for the disbursing officer to test and check an individual payment in large decentralized systems. It concluded that the disbursing officer has to rely on the systems and their control. As a result of this report, the Joint Financial Management Improvement Program is studying the various ways to modernize the administration procedures of the certification process and to determine who should be accountable for the legality, propriety and correctness of the computer systems in the federal sector. [8:48]



(3) Interpretation of the United States Code.

Paragraph 82B of the USC specifically requires the disbursing officer to ascertain that the payment is properly computed and is held accountable accordingly. However, paragraph 82C (contained in Appendix B) authorizes the Comptroller General, at his discretion, to relieve a disbursing officer of the liability for any certified payment based on official records. It is the author's interpretation that if adequate safeguards are designed into a computer system which will only allow properly certified invoices contained in official accounting records to be entered into the payment routine, the Comptroller General could relieve the disbursing officer of his legal liability for payment computation.

It was due to the increasing size and complexity of the civilian payroll which required the Navy to establish the finance officer as a certifying official. The disbursing function at San Diego prepares 16,000 checks to meet the biweekly payroll. Provided the procedures used to prepare the payroll meet acceptable standards, the disbursing officer is only accountable for the differences in the amount computed and the check issued. The finance officer retains the hard copy documentation (signed time cards for instance) which can be used as the audit trail.

A similar situation is developing in the processing of commercial invoices. Both the Navy and GAO have recognized the increasing volume of commercial transactions and the inability of the disbursing officer to ascertain the accuracy of each payment. This alternative suggests that





the Navy design a system which will allow officials to certify financial data previously entered into the official files and to provide the disbursing officer with written protection from pecuniary penalties when improperly calculated payments are processed and paid. This guidance must be specifically stated in the NAVCOMPT Manual. Proposed guidance is contained in Appendix D.

In the design of such a system, there must be adequate safeguards to prevent fraud and abuse. The author's proposed system is contained in Chapter V. Basically, the funds administrator will function as the certifying officer for the activity's official accounting records. Coded passwords for entry into a particular file would be required along with terminals in various locations able to perform certain functions on certain files. The funds administrator will retain the hard copy documentation. Strict internal audits will be conducted within the system, and the Quality Control Division of the FIPC will continue to test the accuracy of the system's computations through on-line inquiry into the accounting files of the activity.

This alternative offers several distinct advantages. First, it complies with the long-term objectives of the Navy's FMIP, in particular: IDA, PASS and APADE II. Hard copy document transmission has been eliminated for on-line activities allowing for the optimization of telecommunications and automated data processing. Financial reports will be timely and accurate. Centralization of the disbursing





function will allow PASS and MPSIP to become more efficient through the reduction of and consolidation of disbursing functions. Although APADE II is currently designed for procurements much larger than the routine invoices processed by an activity, the system could easily be expanded to include the activity procurement process. Second, it allows the FAA to be an active participant in the management of its operating budget concerning payment of commercial invoices. The funds administrator will be responsible for taking the appropriate discounts, and Receipt Control will be fully involved in the status of the vendor's invoice. Third, the current vendor/activity relationship will not be altered. This relationship could actually improve as the system becomes more efficient, and the activity will have more control over the official accounting records. Finally, the FIPC facilities and personnel requirements will not require substantial increases. Their duties will be discussed in Chapter V.



## V. PROPOSED METHOD OF PROCESSING COMMERCIAL TRANSACTIONS

This chapter contains the author's recommended process for the certification and payment of commercial invoices. In designing a system, the following criteria were determined to be essential if the system is to meet the needs of the Navy: comply with the objectives of IDA and Treasury's guidelines on cash management, allow for integration with the other programs in the Financial Management Improvement Program (FMIP), ensure payments are made to vendors within an acceptable time frame, and provide sufficient internal controls to prevent fraud and abuse.

### A. PAYMENT CERTIFICATION FOR ON-LINE FUNDS ADMINISTERING ACTIVITIES

The FAAs will have the responsibility for entering the required data into the integrated data base and payment certification. Processing and certification within the FAA is depicted in Figure V-1.

#### 1. Establishment of the Obligation

The Purchasing Division functions in the same manner as it did in Phase IIB. When an authorized purchase request is received for a good or service, the purchasing agent determines the most appropriate procurement process. In the case of a purchase order, the approved purchase order is sent to the vendor providing written authorization to supply the goods or service. The Purchasing Division will enter the data into the Financial Information Processing System (FIPS) through an



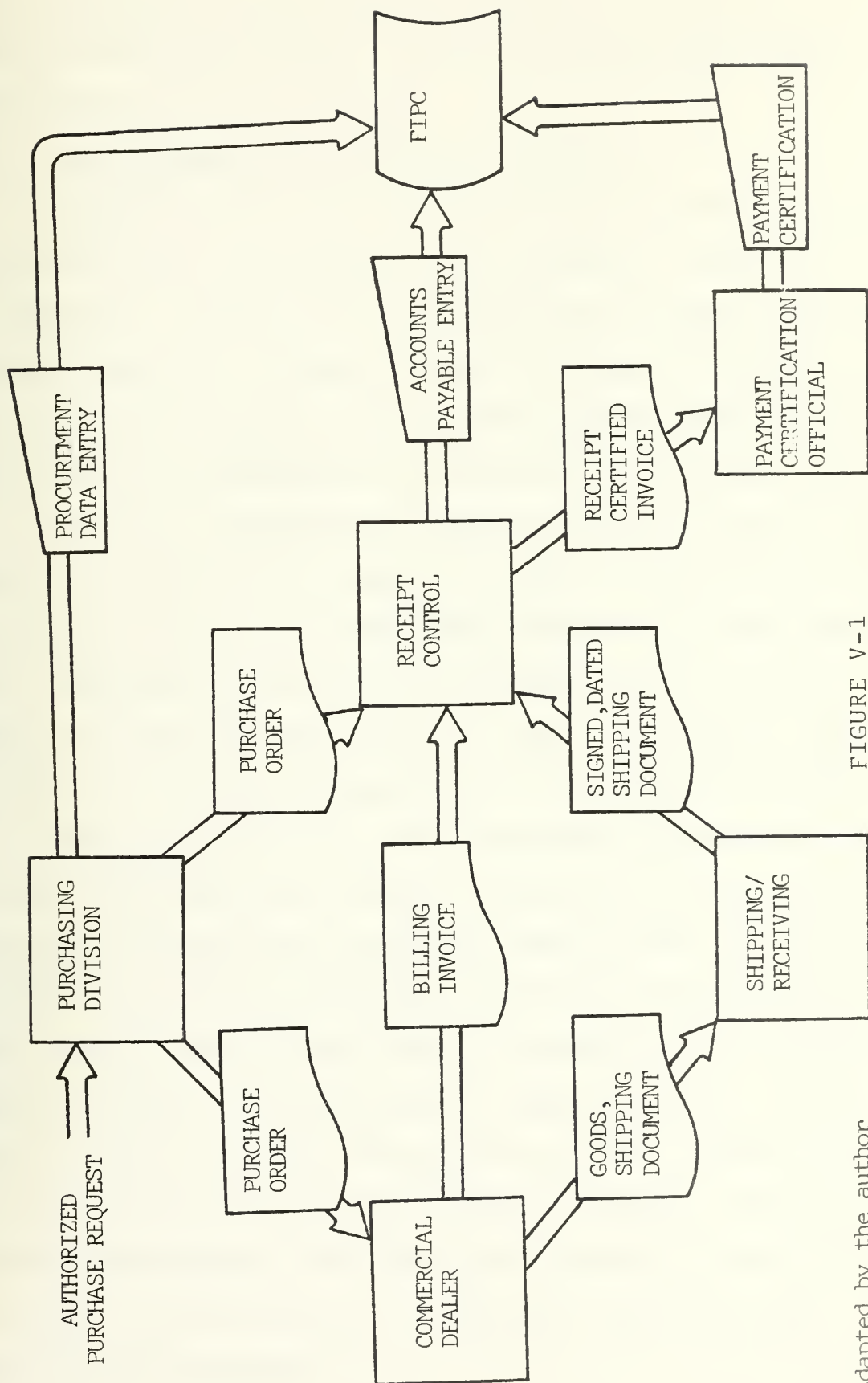


FIGURE V-1

Adapted by the author



on-line terminal to establish an obligation in the FAA's official accounting records. A copy of the purchase order is forwarded to Receipt Control.

## 2. Establishment of an Accounts Payable

Receipt Control will continue to be the central point in the collection and processing of commercial invoices. When received, invoices are date stamped and matched with the purchase agreement. Shipping/Receiving Division receives, verifies and then forwards the shipping documents to Receipt Control where the documents are compared to ascertain propriety for payment. Shipments for which the billing invoice and shipping documents do not agree, or there are deviations from the procurement specifications, are resolved with the vendor and/or Purchasing Division. If no exceptions are noted, payment (with and without discount terms) is computed, type of payment determined and payment due dates are established.

Receipt Control will then enter the required data into the FIPS. The data will include: activity accounting data, accounting classification reference number (ACRN), quantity received, unit price, procurement instrument identification number (PIIN), date of the invoice, discount terms, discount payment due date, discount payment, type of payment (either final or partial), amount due without discount, payment date and information concerning the commercial vendor. After all data has been entered, the system will perform an automatic edit check. At this stage of processing, the following checks will be performed:





a. Verification that an obligation has been established and that the payment does not exceed the amount obligated.

b. Verification that each line of the invoice is within the limits specified by the purchase agreement.

c. Verification that if discounts are available, the terms of the discount meet the minimum acceptable limits established by the Treasury. Discount data for discounts less than the acceptable limits will be automatically deleted from the accounts payable file.

d. Verification that a previous payment for the invoice has not been made.

If the data entered passes the edit checks, an accounts payable will be posted in the official accounting records. Receipt Control will then sign the billing invoice, certifying receipt of the goods or service, and forward the documents to the certifying official for payment certification.

### 3. Payment Certification

The funds administrator or his designated agent is responsible for payment certification and must be designated in writing as a certifying official. The certifying official is administratively responsible for the computation of the receipt certified billing invoice.

Upon receipt of the billing invoice, the certifying officer will compare the data contained on the purchase order with the obligation, the billing invoice data with the accounts payable file and review the computations and payment



due dates. When the determination has been made that the data in the official files is correct, the payment certification code will be keyed into the FIPC data base. It should be noted that an accounts payable file that has not been certified cannot be accessed by the payment preparation routine at the FIPC. Invoices which have been certified for payment will then be filed at the FAA.

If errors are discovered in the accounts payable or obligation files, the certifying official will not have the capability to make changes to these files. Receipt Control or the Purchasing Division must be notified to make the changes on the terminals in their working space. In order to ensure internal control, no individual should have the capability to make entries in all the files necessary to certify an invoice for payment.

#### 4. Security Controls Necessary for FAA Terminals

The need for internal security controls for an on-line terminal entry system to prevent fraud and abuse cannot be over emphasized. At a minimum, the following measures must be incorporated.

##### a. Passwords and Password Security

Each individual authorized to access and/or make entries into an FAA's official accounting files must have a password which will identify the user and the files he is authorized to access. The password system would be a multi-level security system recognizing user, procedures and confidentiality of the code. For instance, a purchasing agent



would have a password which would allow him to access and make entries only in the obligation file. The file would contain the name of the agent which made the entries, not his password. Passwords would be changed frequently, without notice, with no one list containing all the passwords of the activity. The system should be designed to provide a list of abortive attempts to access a file.

b. Limited Terminal Capability

The terminals located in a particular space would only have access to certain activity files. Terminals in Purchasing Division could be used to access and make entries into the obligation file. Receipt Control should have access to the obligation and accounts payable files but only entry capability into the accounts payable file which have not been certified for payment. The certifying official could access any activity file but entry limited to certification of records.

c. Edits

As previously discussed, automatic edit checks allow the comparison of the accounting files, assurance that all required data has been entered and can be expanded to include such things as maximum payments allowed and minimum acceptable discount terms as mentioned in the verification checks.

B. PAYMENT PROCESSING AND CHECK PREPARATION BY THE FIPC

Once the transactions have been certified for payment by an on-line FAA, the official accounting records provide the



required data for the preparation and payment of commercial invoices by the FIPC. This process is depicted in Figure V-2.

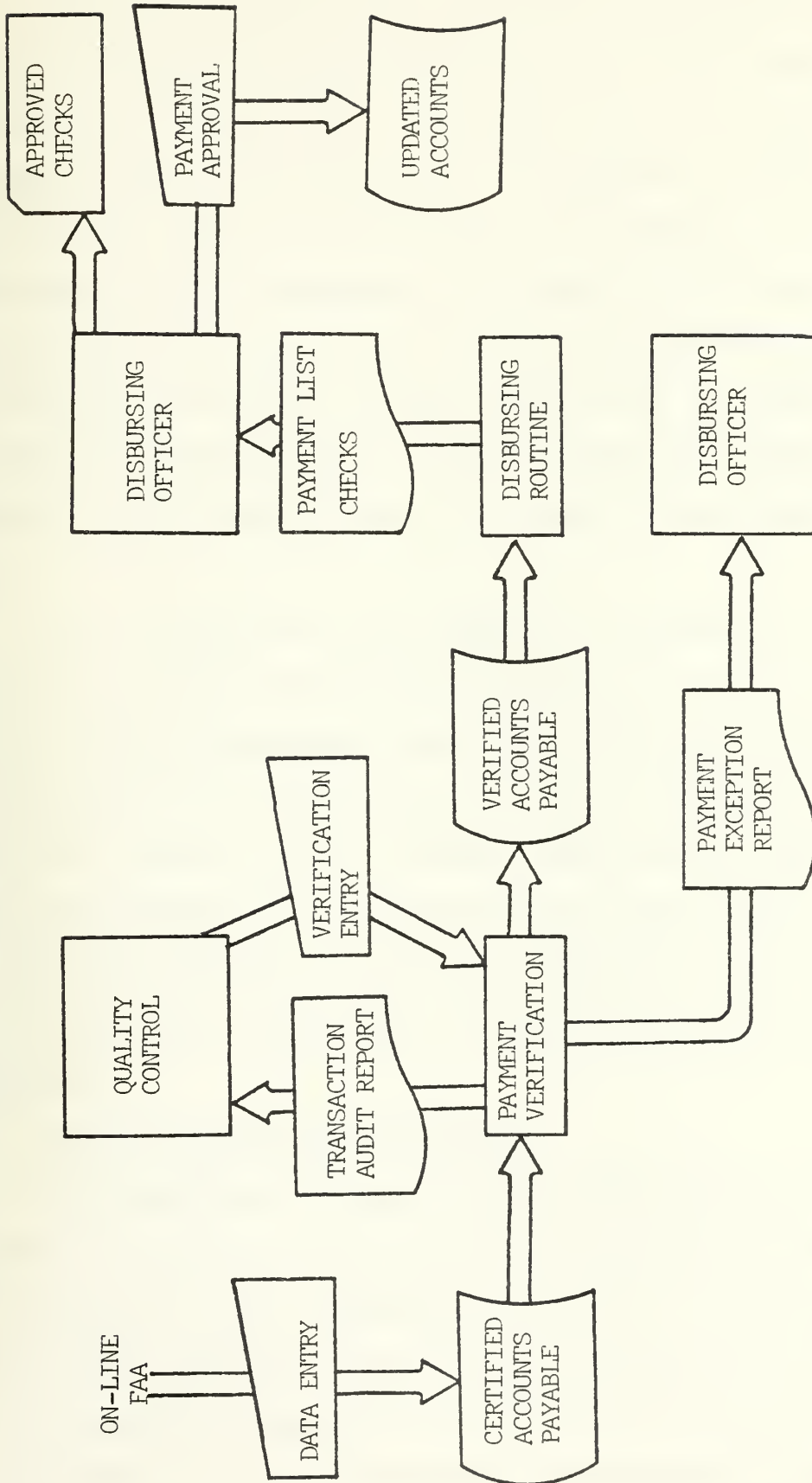
1. Payment Verification of Certified Accounts Payable

Although the disbursing officer is not legally liable for improperly computed payments of commercial invoices under this proposal, he is charged with the responsibility to conduct reviews of the decentralized certification process (see Appendix D). The payment verification routine is designed to meet this requirement.

Payment verification consists of automatic internal edit checks by the system and manual payment computation of a random sample of transactions by the Quality Control Division. The automatic edit checks will be performed on a daily basis on all certified accounts payable entered since the last check. Although this process is designed to compare the internally computed payment to that entered by the FAA, other edit functions desired by the disbursing officer can be included. For instance, edits could be added to: verify that the commercial dealer is not on the payment hold-up list, hold-up the payments of FAAs which have not practiced acceptable certification procedures and prevent automatic processing and payment of invoices over a certain dollar amount without manual verification. Those transactions which fail the automatic edit checks will be listed on a Payment Exception Report, along with the edit failed, which will be resolved by the disbursing officer.







Adapted by the author

FIGURE V -2



The random sample that is manually computed by Quality Control is a check to assure the accuracy of the internal controls within the system. The sample will be randomly generated by the system and will be forwarded to Quality Control in the form of a Transaction Audit Report. Quality Control will access the accounts payable and obligation files to obtain the data required to manually compute the payment. It is estimated that the required sample size for this attribute sampling technique will be small since the internal and external controls should result in a very low estimated error rate.

If the accuracy of the sample is confirmed by Quality Control to be within prescribed standards, an entry will be made to verify the payments which will allow the transactions to be accessed by the disbursing routine. Failure of the sample will require either a larger sample to be taken or manual verification of all transactions in the routine. In the case where excessive errors are discovered, Quality Control will have the capability to individually verify each transaction.

## 2. Check Preparation and Payment

When certified accounts payable have successfully completed the payment verification routine, the transactions can be accessed by the disbursing routine. To ensure the payments are delayed until the due date established by the FAA, the retrieval method will access the files through payment due dates. The disbursing routine prepares the checks and a listing of all transactions processed.



The checks and listing will be forwarded to the disbursing officer for approval. The disbursing officer compares the amount on the check with the certified amount due. If the two are the same, the check is approved and mailed to the vendor. The listing will provide a record of the payments made on a particular date and the amount.

In order to update the accounting files, the disbursing officer enters a payment approval code into the system for all the transactions or individually if errors are discovered. Entry of the payment approval will remove the accounts payable from the file and record the expenditure.

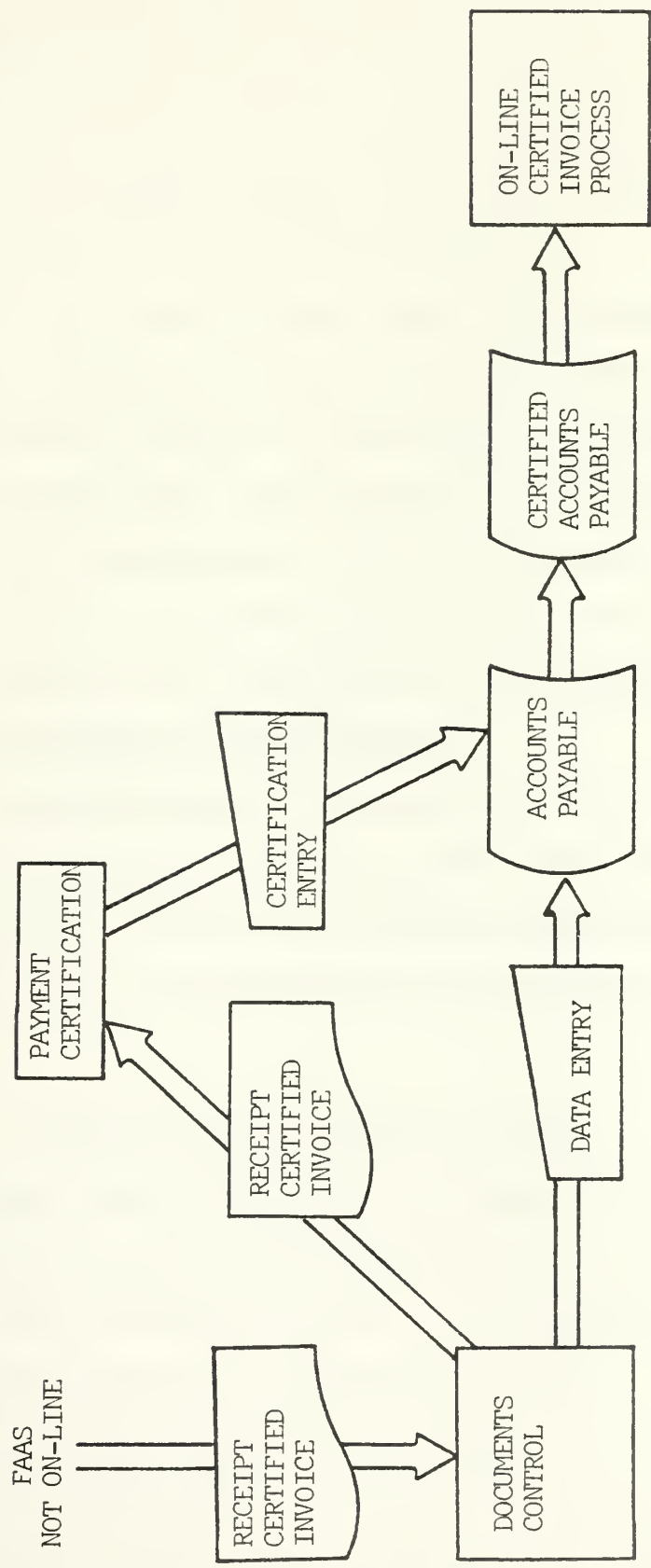
#### C. INVOICE PROCESSING AND PAYMENT FOR FAAS WITHOUT TERMINALS

For those activities which do not have an on-line capability, the requirement for transmission of hard copy documentation will continue. The processing methods discussed in Chapter III must be continued for the FAA. Receipt Control will continue to receipt certify the purchase order and commercial invoice. The FAA will forward these documents to the FIPC for entry into the data base, payment certification and payment.

##### 1. Processing and Certification by the FIPC

Processing and certification for transactions of FAAs without terminals and for FAAs without payment certification authority are contained in Figure V-3. This process is designed to suitably interface with the processing of on-line users' data.





Adapted by the author

FIGURE V - 3





Documents Control will receive and enter data contained in the purchase order and billing invoice submitted by the FAA. The entry method and edit checks will be the same as for Receipt Control and Purchasing Division of on-line FAAs except Documents Control will enter the data to establish the obligation and accounts payable.

After entry into the data base, the documents are forwarded to a certifying official who will compare the data entered by Documents Control to the hard copy documents. If errors are discovered, the documents are returned to Documents Control for corrections. If no errors exist, a payment certification code is entered into the system and the transaction is included in the certified accounts payable file.

## 2. Check Preparation and Payment

After the transaction is certified, the processing method is the same as for an on-line FAA. The certified accounts payable are verified through the verification routine and can then be accessed by the disbursing routine for payment.

## D. SUMMARY OF BENEFITS OF THE PROPOSED METHOD

The proposed method of processing commercial transactions presented in this chapter is designed to meet the needs of the Navy in a most beneficial manner. The benefits, along with their related costs, are presented below.

### 1. Meets the Design Criteria of IDA

Under this proposal, there will not be a requirement for transmission of hard copy documentation by on-line FAAs,



and this will allow optimization of electronic innovations. The official accounting records will be updated daily, resulting in reports reflecting the current status of the accounts.

The cost-benefit analysis, conducted to justify the IDA design, estimated 30 million dollars would be saved during the first ten years over the development and implementation costs through base consolidations and reductions in personnel. Due to program slippage and double digit inflation, this estimate may be considered high but IDA will reduce the civilian ceiling by approximately 1000. [4:iii] The personnel reduction estimates were based on a system which would not require the transmission of hard copy documents. The author's proposed system will allow the Navy to realize these savings.

## 2. Enhancement of Cash Management

### a. Benefits of Discounts Taken and Interest Payments Avoided

When IDA was designed, it was recognized that improvements in processing commercial invoices would enable cash management policies to be more effectively followed. The author's proposal was designed to enhance cash management by complying with the guidelines of the Treasury Department. It is important to note that good cash management not only reflects efficient management, it is now the law for all federal agencies. The author's proposed system provides an internal capability to: delay payments to the appropriate discount or final due date; reject discounts not meeting



established minimum criteria, and automatically take advantage of discounts as a matter of routine, eliminating any need for special handling.

If this processing method were installed at the Naval Supply Center, San Diego, the weekly average discounts lost (\$300) and monthly interest cost (\$5949 assuming 85 percent of the invoices are paid 3 days early) could be avoided. (These costs are discussed in Chapter IV.) This represents an annual savings in excess of \$80,000. If the FIPC was a representative sample for the entire FIPS, the annual savings from good cash management would be in excess of 1.5 million dollars.<sup>4</sup> While accurate savings estimates cannot be made for all on-line activities in the FIPS based on one FIPC, calculations do indicate that significant savings can be realized.

The author concludes that with the final IDA/URMS processing method still in the design phase, Treasury Department's cash management can be incorporated without difficulty and will result in the significant annual savings discussed. The question is not should cash management be practiced, but what is the best method (e.g., certify invoices at the FAA or at the FIPC)?

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<sup>4</sup>This amount can be calculated either of two ways. First, annual savings for the FIPC:  $(52) \times (300) + (12) \times (5949) = 86988$ . Since there will be 19 FIPCs/FPCs, total cost is  $(19) \times (86988) = \$1,652,772$ . Second, the annual savings of each FAA is  $86988/275$  or  $\$361.32$ . There are 5500 FAAs and the annual savings will be  $(5500) \times (316.32) = \$1,739,760$ .



Provided the payment due date is based on the date that the commercial invoice is received by the activity entering the invoice data into the system, the annual savings from cash management can be realized no matter if the invoice is received by the FAA or FIPC. Should a discount payment date be specified on the invoice, more discounts could be lost with invoices sent to the FIPC due to increased delays in the processing caused by greater geographical separation of the FIPC and vendor and increased volume at the FIPC.

b. Benefit of Local Management of Invoice Payment

A major aspect of the proposed method is the involvement of the FAAs in the process. Officials tend to agree that managers in the federal sector, outside the Treasury Department, are concerned with the accomplishment of the mission, not efficient cash management. [7:1] By having the FAA solely responsible for the input of payment data, the system enables all levels of management to realize the benefits of good cash management. The Treasury will save the interest cost while the FAA will soon realize that a properly managed process can result in the ability to buy more with a fixed operating budget. The essence of cash management can be spread throughout the management field, not remain a function of top level managers.

c. Benefit of Enhanced Customer/Vendor Relations

The need for a system which enhances customer/vendor relations cannot be over emphasized. A more centralized disbursing function will not hinder these relationships





if the FAA has control of the records used to make the payments. Under the proposed process, the FAA can more easily answer the vendor's questions as the data are computed and entered locally. Disputed data (i.e., payment due date or amount) entered by the FIPC can lead to lack of understanding and/or guesswork by the FAA which can result in the loss of a vendor's service.

#### d. Costs

Having more control at the FAA is not without cost. When the cost/benefit analysis was conducted on the IDA concept, as reported in the IDA design manual, the personnel and equipment cost for terminals in Receipt Control and Purchasing Division were included in the estimate. The author's proposal requires one additional terminal and probably a spare to be installed at each FAA for payment certification. At current prices, terminals cost \$1200, thereby increasing the equipment cost by \$2400. In addition, the personnel required for payment certification are not included in the FAA manning level. While the author concludes the personnel required can be obtained from within the FAA when the organization adapts to the new system or by productivity increases,<sup>5</sup> there exists the possibility that additional

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<sup>5</sup>If the FIPC observed can be regarded as typical, approximately 6000 invoices are processed monthly for 275 activities or an average of 22 invoices per activity per month. It is estimated that payment certification should require approximately 20 minutes for each transaction. The FAA's total certification function would therefore take less than eight hours or a five percent productivity increase (assuming a 160 hour month) for one person.



personnel may be required or salary increases may be needed for present IDA personnel due to an increase in job requirements.

By conducting the certification function at the FIPC, the cost savings will consist of the initial outlay for certification terminals at the FAA and possibly an increase of personnel or their salary to operate the FAA certification terminals. Certification at the FAA will reduce the following items: payment certification and Documents Control personnel at the FIPC, their related terminal equipment, personnel required to reconcile invoice data with the activity and/or vendor, mail handlers and sorters, and the possibility of work space expansion at the FIPC due to increased personnel requirements. It was mentioned in Chapter IV that the prototype FIPC is already crowded and the invoice volume is expected to increase by more than two times when the FIPS is completed while only increasing the number of FAAs served from 275 to 300.

The data required to conduct a complete cost comparison of the two processing alternatives was not available to the author. The cost associated with the proposed method (payment certification at the FAA) consists primarily of the initial outlay of terminal equipment as compared to the cost associated with the alternative method (payment certification at the FIPC) consisting of annual salaries for personnel



increases at the FIPC.<sup>6</sup> Based on the increase of invoices expected at the observed FIPC, a conservative estimate of eight additional people will be required for FIPC certification. (This includes three people in Documents Control, one mail handler, two people for reconciliations and certification.) If the annual salary for each person is \$20,000, the total annual increase would be \$160,000. If the certification function is performed by the FAA, the initial outlay for terminals would be \$720,000 (300 FAAs at \$2400 each). Based on these costs, a simple breakeven analysis, not recognizing the time value of money, would be 4-1/2 years ( $\$720,000 / \$160,000$ ). A breakeven analysis recognizing the DOD established discount rate of ten percent, with continuous compounding, the costs of the alternatives are equal after 5-1/2 years. (The annuity discount factor for five years is 3.97 and six years is 4.57 as compared to the calculated factor of 4.5 by dividing \$720,000 by \$160,000.)<sup>7</sup> Terminal equipment is assumed to have a ten year life.

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<sup>6</sup>While the author realizes additional annual costs (i.e., operation and maintenance) will exist for the FAA under the proposed plan and initial outlay costs for the FIPC under the alternative method, these costs were assumed to be sufficiently small to be excluded from the comparison.

<sup>7</sup>Sensitivity analysis indicates that six people would require six years in a simple payback and almost nine years using the ten percent discount rate. If ten people are required, the simple payback is 3.6 years and less than five years discounting at ten percent. If the spare terminal is not required, the payback periods will be reduced by one half.



These rough estimates coupled with the nonquantifiable factors of FAA/vendor relations, FAA personnel morale and cash management involvement throughout the Navy's financial structure are the basis for the author's selection of the method requiring FAA certification.





## VI. CONCLUDING COMMENTS

Timely and reliable information is important to all levels of management. From the funds administrator's need for accurate data to plan and control the operating budget to top level management's need to adequately justify programs to Congress, the data must be processed to provide useful information. As the requirement for justification of program allocations increases at all levels, the need for a financial control system capable of providing the information becomes more apparent. Without the use of modern computer technology, these needs cannot be met in the Navy. IDA possesses the technology and support of top level management to be capable of providing the required information at all levels of management.

In 1978, the Treasury Department published requirements to establish systems which promote sound cash management in all federal agencies. It was about this time when IDA/URMS final processing method was being designed. Although the IDA concept had anticipated that improved processing of commercial invoices would require cash management reforms, the timing of the Treasury permitted controls to be designed into the system not added to an existing program. Management had to make a decision on the best processing method. These alternatives are discussed in Chapter IV. The decision was made to require commercial billing invoices to be submitted directly to the FIPC for certification and payment. In essence,



certification and payment of billing invoices is to become more centralized and will allow easier control for top level management.

While the author's analysis concluded that centralization of payment and decentralization of the certification function to the FAA level would optimize the computer network, it is not surprising that the Navy chose centralization of both. An important issue in the decision was the unsuccessful attempt in gaining support to establish the certification function in the Department of Defense. It was assumed that paragraph 82B of the United States Code would have to be changed to relieve the disbursing officer of legal liability. Perhaps the most important issue, however, is an apparent trend in the programs of the Financial Management Improvement Program. Programs tend to stress consolidation through centralization to reduce costs through increased efficiency (i.e., MPSIP, PASS, IDA, JUMPS). At a time when the legal aspects appeared unchallenged and centralization would reduce the initial equipment outlay, the decision appears quite sound.

This study has attempted to view the legal issue in a different light. Not only does paragraph 82C of the USC allow the Comptroller General to relieve the disbursing officer of legal liability for certification based on official accounts, but NAVCOMPT Manual recognizes the certifying function in the preparation and payment of civilian payrolls. This recognition of the certifying official apparently is an



acceptable practice since countless audits have been conducted by GAO and the practice continues. Other than responses such as "It is in accordance with the NAVCOMPT Manual" or "It has always been done that way," what is the difference?

The issue of centralization versus decentralization has been a major source of disagreement among managers for some time. Most accept that centralization leads to better top level control and elimination of duplication of effort, whereas decentralization provides better training and possibly higher morale among middle and lower level managers as they have more authority and the feeling of confidence and support of upper management. While centralization of the certification function in itself does not reduce the authority of managers at FAAs, the submission of billing invoices directly to the FIPC reduces the involvement in the process and can lead to frustration when problems arise with vendor payments. This could lead to job dissatisfaction in a period where personnel retention is a major problem.

While the cost/benefit comparison discussed in Chapter V does not contain the required data to determine which of the alternative methods is the most efficient based on quantifiable data, it does demonstrate that a detailed analysis should be performed if the decision is to be made solely on costs versus benefits. It is the author's conclusion that the design must incorporate the efficient utilization of resources (cash management as addressed in this study) while gaining the support and cooperation of managers at all levels.



## APPENDIX A

### DETERMINATION OF THE MINIMUM ACCEPTABLE DISCOUNT

The minimum discount that an agency can take is a direct indication of the cost of capital to the Treasury Department at the time the guidelines are established. If the discount must be taken within 10 days or the total is due in 30 days (for instance, 1/2% in 10 days, net 30), the Treasury must borrow funds to take the discount which would otherwise not be required for 20 days when the final due date on the invoice is reached. If the annual interest rate for capital is greater than the annual discount rate on the invoice, the discount should not be taken as it will cost the government more to borrow the funds than it will save by taking the discount. The annual discount rate can be determined by the use of a proportion assuming a 360 day year.

$$1/2\%/20 \text{ days} = X\%/360 \text{ days}$$

$$X \text{ (annual discount rate)} = 9\%$$

If the cost of capital is 9%, the government would be indifferent in taking discounts of 1/2% in 10 days, net 30. If the annual discount rate is greater than 9 percent, the agencies should take the discounts. As the cost of capital continues to increase, as the current rate is nearly 12 percent, perhaps the Treasury should revise the minimum acceptable discount to 3/4% in 10 days, net 30, which would reflect a cost of capital of 13.5 percent.





## APPENDIX B

### EXCERPTS FROM TITLE 31 OF THE UNITED STATES CODE

82b. Disbursing officers of executive branch of the Government; examination of vouchers

Notwithstanding the provisions of section 82, of this title, and section 4 of Executive Order Numbered 6166, dated June 10, 1933, disbursing officers under the executive branch of the Government shall (1) disburse moneys only upon, and in strict accordance with, vouchers duly certified by the head of the department, establishment, or agency concerned, or by an officer or employee thereof duly authorized in writing by such head to certify such vouchers; (2) make such examination of vouchers as may be necessary to ascertain whether they are in proper form, duly certified and approved, and correctly computed on the basis of the facts certified; and (3) be held accountable accordingly.

82b-1 Statistical sampling procedures in examination of vouchers; adequacy and effectiveness of procedures.....

.....no certifying or disbursing officer acting in good faith and in conformity with such procedures shall be held liable with respect to any certification or payment made by him on a voucher which was not subject to specific examination because of the prescribed statistical sampling procedure; provided, that such officer...have diligently pursued collection action to recover the illegal, improper, or incorrect payment in accordance with procedures prescribed by the Comptroller General.....

82c. Certifying officers; accountability; relief by Comptroller General

The officer or employee certifying a voucher shall (1) be held responsible for the existence and correctness of the facts recited in the certificate or otherwise stated on the voucher or its supporting papers and for the legality of the proposed payment under the appropriation or fund involved; and (2) be held accountable for and required to make good to the United States the amount.....The Comptroller General may, in his discretion, relieve such certifying officer or employee of liability for any payment otherwise proper whenever he finds (1) that the certification was based on official records and that such certifying officer or employee did not know, and by reasonable diligence and inquiry could not have ascertained, the actual facts, or (2) that the obligation was incurred in good faith.....



## APPENDIX C

### EXCERPTS FROM THE NAVCOMPT MANUAL

#### 045000 Responsibility of Preparing Officer

Civilian payrolls will be prepared and certified as prescribed in Volume 3. It is the responsibility of the officer certifying the civilian payrolls to determine that the earnings deductions net pay, and the information on the face of the cover sheet of the Payroll for Personal Services-Payroll Certification and Summary are correct. He is administratively responsible for all errors and for all overpayments resulting from errors in computation and amounts shown on the Payroll for Personal Services, the TFS Form 7310, and the NAVCOMPT Form 1128. Payment to contractors under master labor contracts covering indirect hire of indigenous employees is a payment for contractual services rather than personal services and will be made on a Public Voucher prepared in accordance with Chapter 6.

#### 045001 Responsibility of Paying Officer

The disbursing officer serving a shore activity for the payment of civilian employees pays the amounts authorized by the civilian payrolls prepared and certified by the fiscal officer or finance officer after a sight audit for obvious errors and to determine that the amounts are reasonable. In lieu of verifying each item reported on the payroll by detailed audit, the disbursing officer, by review of procedures followed in the payroll office, satisfy himself as to the accuracy of the results produced. In addition, the disbursing officer, should he consider it necessary, may observe personally or through a subordinate the control, proofing, and verification processes used in the preparation of each payroll.



## APPENDIX D

### RECOMMENDED CHANGES TO THE NAVCOMPT MANUAL

#### Responsibility of the Certifying Official

It is the responsibility of the officer certifying the commercial billing invoices to determine that the amount stated in the accounts payable file is properly computed and that all appropriate discounts are taken. He is administratively responsible for all errors in the computation and amounts shown in the certified accounts payable file which contain his certification. He is responsible to ensure appropriate security measures are taken to protect the computer terminals and personnel passwords from unauthorized use and compromise.

#### Responsibility of the Paying Officer

The disbursing officer serving a Financial Information Processing Center pays the amount authorized on the certified accounts payable file which has been computed and certified by a designated certifying official of the Funds Administering Activity (FAA) against which the charge was made. In lieu of verifying each transaction, the disbursing officer should satisfy himself of the adequacy of the designed internal controls and to the professional competence of the FAA certifying official which he serves. The disbursing officer, should he consider it necessary, may revoke an FAA's certification authority and require submission of the necessary



documentation to compute, certify and make payment of commercial billing invoices.





## BIBLIOGRAPHY

1. Anthony, R. N. and Hertzlinger, R. E., Management Control in Nonprofit Organizations, Irwin Inc., 1975.
2. Comptroller General of the United States Report FG MSG-28-16, The Federal Government's Bill Paying Performance is Good but Should be Better, February 1978.
3. Cooper, M. R. and Littleton, J. S., Integrated Disbursing and Accounting (IDA), Its Development and Implementation, Masters Thesis, Naval Postgraduate School, Monterey, 1978.
4. Department of the Navy, Office of the Comptroller, Integrated Disbursing and Accounting (IDA) General Design Manual NAVSO P-3583, May 1977.
5. Fleet Material Support Office, Integrated Disbursing and Accounting, Phase IIC Design Manual, August 1978.
6. Johnson, R. W., Financial Management, Allyn and Bacon, Inc., 1966.
7. Joint Financial Management Improvement Program, Money Management Study, January 1976.
8. Joint Financial Management Improvement Program, Proceedings of Eighth Financial Management Conference, March 1979.
9. Keller, F., "Military Pay Systems Today and Tomorrow," The Naval Supply Corps Newsletter, p. 29-38, December 1978.
10. Kline, R. W., System Integration at Navy Stock Points, Masters Thesis, Naval Postgraduate School, Monterey, 1979.
11. Lynam, E. S., "Here Comes IDA," The Naval Supply Corps Newsletter, p. 37-42, December 1976.
12. Lynam, E. S. and Dula, J. C., "Integrated Disbursing and Accounting: An Overview," The Naval Supply Corps Newsletter, p. 21-28, December 1978.
13. McGraa, J. R., A Review of the Requisition Billing Process--An IDA Approach, Masters Thesis, Naval Postgraduate School, Monterey, 1978.



14. Sanford, H. J., Current Cash Management Efforts Within the Federal Government, Department of Defense and the Navy: Overview and Applications, Masters Thesis, Naval Postgraduate School, Monterey, 1979.
15. Secretary of the Navy, "Policy for the Development of Financial Management Systems in the Department of the Navy," SECNAV INSTRUCTION 7000.18B, April 1977.
16. Terrill, G., "Cash Management in Operation in the Navy," Financial Management Newsletter, Vol. III, No. 3, December 1978.



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